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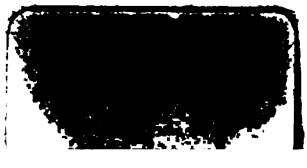

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# UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION

## HEARINGS

BEFORE THE

## COMMITTEE ON COMMERCE
## UNITED STATES SENATE

SIXTY-FIFTH CONGRESS

SECOND SESSION

ON

## S. RES. 170

DIRECTING THE COMMITTEE ON COMMERCE TO INVESTIGATE ALL MATTERS CONNECTED WITH THE BUILDING OF MERCHANT VESSELS UNDER THE DIRECTION OF THE UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION AND REPORT ITS FINDINGS TO THE SENATE, TOGETHER WITH ITS RECOMMENDATIONS THEREON

SEPTEMBER 20, 1918

Printed for the use of the Committee on Commerce

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# UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION.

**FRIDAY, SEPTEMBER 20, 1918.**

UNITED STATES SENATE,
COMMITTEE ON COMMERCE,
*Washington, D. C.*

The committee met, persuant to call, at 12.10 o'clock p. m., in the committee room, Capitol, Senator Duncan U. Fletcher presiding.

Present: Senators Fletcher (chairman), Ransdell, Vardaman, Martin, Bankhead, Kirby, Nelson, Jones, and Harding.

The CHAIRMAN. Mr. Piez, I see in the Philadelphia North American of September 19 a clipping which was sent to me, a discussion of the situation at Hog Island. The article is headed "Hog Island Slackers to be Fired and Sent to France, says Piez." I was wondering if that is any different from the general labor situation as you find it in the shipyards; and if so, what is the cause and whether there is anything that might be done to relieve that condition.

## STATEMENT OF MR. CHARLES PIEZ, VICE PRESIDENT EMERGENCY FLEET CORPORATION.

Mr. PIEZ. All discussion in Philadelphia centers, of course, around the conditions at Hog Island, because Hog Island is the great big feature in Philadelphia; and this discussion arose out of the fact that last week Mr. Holbrook, the president of the Hog Island Co., made a wager with the riveters that they would not drive and could not drive 130,000 rivets a day. As a result of that wager they actually drove 195,000 rivets—the 512 gangs—or an average of 38 rivets per hour. I think the day preceding they had averaged either 17 or 18 rivets per hour. The day following they dropped down to 22; the day following that they dropped down to 19. The newspapers got wind of that situation, and inquired why the men under the stimulus of a gamble should exert themselves to drive 38 rivets per hour on an average, and then immediately sag back to about one-half.

The situation at Hog Island is unique, of course, because it is a very big yard, the number of riveting gangs they have there being 512, which is largely in excess of any number they had at the old shipyards. They have been able to get that number of gangs by a very intensive course of training the men. They are adding to their riveting gangs almost daily. The men at the top, who have had

longer experience, may be improving and undoubtedly are, but the men who are coming in at the bottom drive fewer rivets, so that the average at Hog Island has not improved very much in the last four weeks. But the total number of rivets driven per day has improved something like 30,000, and shows a very marked and steady improvement. Mr. Schwab and I felt several months ago that the output at Hog Island depended very largely on rivet driving—on the number of rivets that could be driven per day.

I think each vessel there has about 480,000 rivets to drive. If we want to turn out three vessels a week, we have got to drive 240,000 rivets per day; that is a mathematical problem, and when we are only driving 80,000 per day it takes us six days to turn out a ship, or at the rate of 50 ships per year. So that we have been concentrating on the rivet driving there for the purpose of enthusing both the men and the management in that art. Our charts of progress in the various yards show that the big progress is made where large number of rivets are driven irrespective of the efficiency of the gangs. So far as they can get gangs enough and drive rivets enough the riveters seem to set the pace for all the mechanics in the yard and dispose of the work quickly, and the men are anxious to keep the gap filled.

I do not think that the situation at Hog Island reflects—it does not reflect the situation in the older yards. There are great differences in rivet-driving efficiency in various parts of the country. The eighth district, for instance, which includes Seattle and Portland—the Puget Sound and Columbia River district—stands at the head of shipbuilding efficiency, but does not stand at the head of rivet-driving efficiency. The yards on the Great Lakes averaged several weeks ago 2,700 rivets per week per gang. The national average is about 1,375. Hog Island last week, under the stimulus of this gamble, was about 800 per gang per week—considerably below the national average. But yards like Skinner & Eddy, who are the biggest producers, were just a little above the national average, something like 1,450, and the Alameda yard, which is the next best producer, was a little below the national average.

So that rivet-driving efficiency per gang is not an indication of output by any manner of means. So the situation at Hog Island is simply one growing out of the inexperience of the men. But we have endeavored to give this some action and work on the men's feelings and enthuse them with the idea that they can, by increased effort, help us increase the output of that yard so that it will quickly become a producer.

Senator NELSON. You will pay them by the hour or the day or the week—the riveters?

Mr. PIEZ. The experienced men are paid wholly by the piece. It is one of the few crafts in the shipbuilding industry that wants piecework; most of them do not.

Senator NELSON. You do not pay all of the riveters, then, by the piece?

Mr. PIEZ. The inexperienced riveters, until they get a certain facility in driving, have got to be worked on daywork, as they come in new. It has been a rather difficult task at Hog Island to induce the men to accept piecework. There are so many new men coming

in that the older men feel discouraged about it. But we are gradually on each ship segregating the experienced men and getting them to accept piecework, and the piecework does immediately increase output.

Senator NELSON. That expedites the work?

Mr. PIEZ. That expedites the work very much; yes, sir; and the cost per rivet is considerably less.

The CHAIRMAN. This article states that "charges made by labor leaders yesterday that petty politics and graft were filling Hog Island with military service dodgers and slackers while skilled artisans are being drafted daily."

What is there in that?

Mr. PIEZ. I can not find any foundation for that at all. Of course, there is always that charge. Hog Island has had to develop a crowd of 30,000 shipbuilders. We could not draw heavily on the other yards. Hog Island has been under the necessity of building up practically all the men out of its own training schools. We have had to accept them as they applied at the door, and we have taken in some very unlikely characters and kinds of men in the hope that they might be developed, and many of them have. There is a feeling, of course, that the shipyards are a haven of refuge for slackers. We are following this policy now, that when we find a man who deliberately slacks, who deliberately loses more than a certain percentage of time each month, he is dismissed, particularly when he is in one of the classifications that would render him available for service in the Army.

Senator RANSDELL. Have you tried to take steps to put him in the Army immediately?

Mr. PIEZ. What we do is to take the man off our Emergency-Fleet list and so report him to the district board.

Senator RANSDELL. Does that keep him from going to work in other yards?

Mr. PIEZ. No; it has not heretofore. But I understand that the new regulations that the provost marshal is issuing will require continued service and will authorize us to dismiss men if they have absented themselves more than two and one-half or three days—I think it is—per month for inexcusable reasons.

Senator RANSDELL. Do you not think we ought to adopt some kind of policy, Mr. Piez, which, while protecting all the legitimate workers in these shipyards, would require the slackers to go into the Army?

Mr. PIEZ. Yes; and we are gradually developing our mechanism so that can be done.

The CHAIRMAN. Does the draft law interfere with your supply of labor materially?

Mr. PIEZ. No. I had a session with Gen. Crowder last week. We have got now, out of 360,000 in the shipyards, about 60,000 men on the Emergency-Fleet list—that is, in the exemption list of the Emergency Fleet Corporation. Gen. Crowder said that under this new draft he would allow us 60,000 more. We were a little uncertain whether that list was large enough to protect our workers. We could not draw too heavily; we could not draw at all on our experienced men, because we depend absolutely on them for output;

and so we are working out an arrangement by which all men applying from now on in class 1 will be rejected. We will not give those men an opportunity to work unless they get exemption on other grounds. We are cooperating with them to that extent. We have in one shipyard dismissed a thousand men in the course of three weeks for slacking and because of inefficiency and general inaptitude for the job.

Senator RANSDELL. What happened to those thousand men? Did they go right off to some other yard and get work?

Mr. PIEZ. Under the conditions that have prevailed heretofore they might have, but they were immediately taken off the Emergency Fleet lists. But hereafter we expect to require a clearance; before a man enters the employ of another yard he must have clearance papers from the old yard under this plan.

Senator RANSDELL. Hereafter you will catch these fellows?

Mr. PIEZ. We are providing machinery for doing it.

Senator RANSDELL. Do you not regard that as important?

Mr. PIEZ. I think it is very important.

The CHAIRMAN. What is the process of arriving at exemption?

Mr. PIEZ. Heretofore we have relied largely on the judgment of the men in charge of the plants, and we have to, of course, as to the need for the men and to the necessity for getting them exemptions.

The CHAIRMAN. They certify them to you?

Mr. PIEZ. Yes.

The CHAIRMAN. Then you certify to the Provost General?

Mr. PIEZ. Yes; and we have a very large force keeping up this list. The list is in the hands of the Fleet Corporation, and is corrected each month, and certified copies sent to the Provost Marshal General's office.

The CHAIRMAN. There is no danger to your labor supply if you can show the necessity for retaining the men who are skilled workers?

Mr. PIEZ. No; there is not. Gen. Crowder is very anxious to cooperate with us. We, of course, want to release all of the class 1 men that we can so that they will be made available, because Gen. Crowder wants to raise a very large proportion of the men he has registered for service abroad.

Senator RANSDELL. From what classes do you find that these men come, if you could assign it to classes?

Mr. PIEZ. I do not know. We have never made an analysis of that kind.

The CHAIRMAN. This article further says:

"Workmen at Hog Island admitted yesterday that considerable slacking existed in the shipyards. Dissatisfaction of men with their jobs and their readiness to quit upon the least provocation were very much apparent. Skilled artisans who had spent years in learning their trades, and who were giving every effort to the success of the shipping program, were particularly resentful." It states that men of mature age are holding positions that were once held by boys, and that they are doing it in order to evade military service. Are you looking into that?

Mr. PIEZ. We are looking into that. The question has been raised there about continuing the boy rivet heaters. The effectiveness of a riveting gang, consisting of a heater, a holder on, and the rivet

driver himself, depends just as much on the ability and skill of heating the rivets to the proper temperature and providing them in the proper quantity, as upon the expertness of the man who drives the rivets. In the older yards, and before this great rush came on, and before the wages were so much increased, boys started in as rivet heaters as the first step in the apprenticeship in the art of riveters, and those boys were perhaps more serious minded than the boys who go there and get 40 cents an hour. A boy of 17 who gets 40 cents an hour and who has not got before him the purpose of learning it as an art and following it as a craft, is apt to be a little bit indifferent; he can get another job if he wants it; the opportunities for jobs are so great at this time that the self-discipline that comes from recognition that jobs are hard to get and that you have got to turn out a certain amount of work in order to hold them is lacking. And so several of the yards have asked us whether we would not permit them to put in men heaters, because the rate of rivet driving was held down very largely by the inefficiency of the youngsters who are to-day acting in that capacity.

Senator NELSON. Why would not men along in their years do that work well?

Mr. PIEZ. We have agreed to that, to take men over the draft age, and we are making that change now.

Senator NELSON. And at that rate, they get fair wages?

Mr. PIEZ. We could even increase wages, because it would aid in reducing the cost of riveting rather than increasing it.

Senator JONES. What is the situation regarding the labor turnover at Hog Island compared with what it was during the early days there?

Mr. PIEZ. It has improved very much. There are several things that help that. Our transportation system has been very much improved. Admiral Bowles is building about 2,000 houses there. Many of those houses are gradually coming into use, so that the men are able to find lodgment somewhere near the yards. We have had men spend one and one-half hours to get to Hog Island and another one and one-half hours to get back home; and, of course, if they could find work nearer home they would give up their jobs there. But with the improved transportation facilities, with the improved housing facilities, the labor turnover is reducing very much. I do not think we have been in many of our new yards as drastic in dismissing men for carelessness and negligence and absenteeism as we should have been, largely because we felt we had to get large numbers of men into those yards in order to get output.

Senator JONES. How do you find it over the country generally in the shipbuilding plants—is the turnover reducing very materially or not?

Mr. PIEZ. Some of the yards show very excellent reductions in turnover. I know one big yard in which the turnover is only about 6 per cent per month, which is a very good record. Of course there is always a certain turnover—men get sick, men move away—and a turnover of 3 or 4 per cent or 5 per cent is a very modest turnover.

Senator JONES. I know that in our hearings of some time ago it was shown that the turnover was very high, and what I wanted to find out is whether there is a material improvement.

Mr. PIEZ. There is a very material improvement in all the conditions at Hog Island.

Senator JONES. I am talking now with reference to the shipbuilding plants generally throughout the country.

Mr. PIEZ. There is a very marked improvement in all of them, and the output per man is increasing.

The CHAIRMAN. Are you getting the housing conditions satisfactorily arranged there at Hog Island?

Mr. PIEZ. Yes.

Senator NELSON. You are building houses?

Mr. PIEZ. Yes; we are building houses.

Senator NELSON. How many?

Mr. PIEZ. A little over 2,000.

Senator NELSON. What are they—brick houses?

Mr. PIEZ. Yes, sir. We started out at first, Senator, with quite a housing development. Our housing department had a very elaborate scheme of community centers and houses around them, but after a review of the situation Admiral Bowles and the rest of us felt that we could do better buying up lots where improvements existed and building our houses of the regular character of Philadelphia house that is accepted by the workmen as the proper sort of house to live in.

Senator NELSON. What are they—two and three story houses?

Mr. PIEZ. Many of them are two and three stories, and there are four, five, and six room houses, such as prevail in Philadelphia. Some of them are used as boarding houses.

Senator NELSON. How many have you completed?

Mr. PIEZ. I could not tell you as to that. Out of the 2,000 we requisitioned, about 500 that were in process of construction. And you will remember the little flurry because the Admiral requisitioned some houses that were occupied. He did that inadvertently, and the houses have been turned back to their former occupants. The houses we are constructing have come into use. I think of the first batch of 900 some 30 or 40 per cent are completed, and I think they will all be finished—the original 1,500—well before snow flies.

Senator RANSDELL. Are they reasonably close to the island?

Mr. PIEZ. They are reasonably close.

Senator RANSDELL. And on a line of street cars?

Mr. PIEZ. Yes; on the line of street cars.

The CHAIRMAN. Do you know what they cost, about, Mr. Piez?

Mr. PIEZ. I am not certain as to that. The cost, I think, is in the neighborhood of $3,500 per house, averaging four, or five, and six rooms, and some eight-room houses.

The CHAIRMAN. Does that include the ground?

Mr. PIEZ. That includes the ground and the street improvements. I think that is about the amount.

The CHAIRMAN. Everything seem to be settling down and working in a systematic way at Hog Island?

Mr. PIEZ. Oh, yes; very much.

The CHAIRMAN. Is the yard about complete?

Mr. PIEZ. It is about 97 or 98 per cent complete, and the yard appears in very orderly fashion now.

The CHAIRMAN. Are they getting materials now?

Mr. PIEZ. Yes; we have got a great deal of material there, and I might say in that respect that we found the earlier conception of

how to operate that yard a little faulty. We felt we could send steel to many different fabricating shops located in many different places in the country, and use those facilities for fabricating the steel and then ship it to Hog Island. It appears now, however, that that used up so large a supply of steel that we decided some months ago, after Admiral Bowles looked into it very carefully, to enlarge certain fabricating shops and to take over certain car shops or place contracts with certain car shops that were not being used for fabricating purposes. These five shops now are located in Pittsburgh or east of Pittsburgh, so that the materials will not have to be shipped, as in some cases they were, from Pittsburgh even as far as Minneapolis and Sault Ste. Marie and then back to Hog Island. Out of the total tonnage of 240,000 tons of steel shipped from the steel mills en route to Hog Island, only 40,000 tons were used at Hog Island. The rest of it was either in process of transportation from the mill to the fabricating shop or at the fabricating shop or en route from the fabricating shop to Hog Island. You see, those three steps used up a very large percentage of the steel that was shipped, and under the present conditions when our steel supplies are very limited and our needs pretty close to our supply, that is a very uneconomic way of using the available supply of steel, and it was on that account we had to concentrate the fabricating for Hog Island at points east of Pittsburgh, so that the material could flow from the mills through the fabricating shops and then to Hog Island practically in sequence and without doubling.

The CHAIRMAN. Here is a statement that particularly disturbed me yesterday. Of course, I do not know that you were correctly reported, but it is a pretty strong statement if this is what you said:

> They are doing only 50 per cent of what they can do at Hog Island, and they are not putting forth their best efforts there every day.

Mr. PIEZ. That was incorrectly reported. What I did say was that what we were doing at Hog Island was only one-half—that is, the normal's day's output—of what should be done there. But I also dwelt on the fact that many of those men were inexperienced and were unable because of their inexperience to do more; that the average was necessarily kept down because of the large influx and constant influx of green men. What I feel is that we ought to oust or dismiss the men who are persistent and deliberate slackers in justice to the men who are putting forth their best efforts. There are many fellows there who are doing very well; others who are attempting to do very well, but only inexperience prevents them.

The CHAIRMAN. You do not mean to say that the output at Hog Island will not be over 50 per cent of what they contemplated?

Mr. PIEZ. What I said was that the present output per gang there was about 50 per cent of what we expect it to be when we have experienced men there.

Senator RANSDELL. Has the work as a whole progressed more than 50 per cent? How does the work compare at the present time with what you expected it would be?

Mr. PIEZ. There were some statements made several weeks ago about that. The Hog Island authorities and Admiral Bowles felt, I think, early in May that they would turn out 48 ships this year.

Senator RANSDELL. What do you mean, your calendar year?

Mr. PIEZ. Yes, sir: the calendar year: deliver 48 ships this calendar year. In our own estimate of output for this year we put Hog Island down for 20 ships because of the tremendous difficulties they were going to have in building up quickly an organization, and I did that largely because of our experience with other yards. The Skinner & Eddy yard, for instance, which is our biggest producer, turned out 2 ships the first year, starting with nothing, building their yards. They turned out 8 ships the next year on five ways: this year they will turn out 26 ships on five ways. So that the matter has been progressing. I did not feel that they would turn out 50 ships this year, though it was in the range of possibility that Hog Island——

Senator RANSDELL. How many ships have they turned out now?

Mr. PIEZ. None: but they will probably turn out one the first year: they are not up to their year yet. I think they started the 25th of September last year. But they have got quite a number of ships well advanced. They have two in the water and another about ready to launch in a day or two. We do not announce the launchings, because we expect them to go overboard pretty fast.

Senator RANSDELL. Do they put in some of the machinery before they launch the ships?

Mr. PIEZ. Oh, yes: boilers and engines are usually put in before they are launched. We are finding difficulty in getting enough skilled workmen to install machinery. You see, the really skilled craftsmen are employed in the installation yards and not in the riveting. You can train up a riveter in six or eight weeks, particularly if he has had some collateral experience: but for really installing machinery in the ships you have got to have men of considerable experience.

Senator NELSON. How many ships would you get out of that yard this year, on the sea for service?

The CHAIRMAN. His estimate was 20 originally.

Mr. PIEZ. I hope they will get pretty close to 20, Senator. If they can make the same progress from now on as they have up to date—and I think they will—they will come very near to living up to our expectations. They will not come up to their own expectations, but they will probably come up to ours.

The CHAIRMAN. Is the ship fully equipped when it goes overboard?

Mr. PIEZ. Only partly. They launch after they get in the boilers, as a rule, and the engines, and complete the installation at the fitting-out pier to make the way available for the next hull.

Senator VARDAMAN. How many ships have you completed there?

Mr. PIEZ. We are just about to complete the first one. Of course, that always takes a long time. Many things are found lacking and certain adjustments have got to be made.

Senator VARDAMAN. If you have the facts in mind, what did it cost to install that plant? It was estimated to be $20,000,000 in the beginning, but I would like to know just what it cost to complete the plant.

Mr. PIEZ. The original estimate, which was a very hastily prepared one and on a basis of plans that were subsequently materially modified, was $21,000,000. Then we gave them the contract for a second type of ship, Senator, that we know as class B, a troop ship of 15 or 16 knots speed. Their estimate after they got that, recognizing

the additional complications in making two types of ships instead of one, was that the yards would cost about $27,000,000 or $28,000,000. I think the most recent estimate was $58,000,000.

The CHAIRMAN. The yards have been very materially enlarged?

Mr. PIEZ. They have been very materially enlarged.

The CHAIRMAN. And the facilities increased?

Mr. PIEZ. The fitting-out piers particularly. Admiral Bowles had a notion that that would develop into a splendid terminal. Upon a review of the possibilities there, we decided to spend quite a little more on the fitting-out docks in order to make them useful as shipping piers for terminals. Our piers there are wide enough so that the railroad tracks run right on and we can ship troops or supplies, fill the vessels right there, and have them ready for service as they leave the yard. I think that was a very wise modification; that represented a cost of some $2,000.000 or $3,000,000.

Senator NELSON. That was a very wise move?

Mr. PIEZ. That was a very wise move, because it was the one thing that will be useful in salvaging that yard.

Senator RANSDELL. You could load and unload 28 ships a day there?

Mr. PIEZ. Yes. It is a superb terminal and railroad transportation proposition, and particularly the arrangement of the piers with reference to railroad facilities. It is just as superb a set of piers as you have got anywhere in New York or Liverpool.

The CHAIRMAN. At one time you thought of completing only 32 ways, but you have gone on and completed more?

Mr. PIEZ. That was my recommendation, made in my earlier days, made largely because I felt it would be too long a process to organize that yard, but Admiral Bowles finally felt that they had gone so far that it would be wise to finish 50 ways, and I assented to it.

Senator RANSDELL. They are practically all finished?

Mr. PIEZ. All finished, and 42 keels laid.

Senator RANSDELL. And two ships in the water.

Mr. PIEZ. Yes.

Senator RANSDELL. So you have 44 ships either finished or work begun on?

Mr. PIEZ. Yes; and many of them are quite well on toward completion.

The CHAIRMAN. Have you added to that contract since our last hearing?

Mr. PIEZ. Yes. They started with the contract for 50 class A ships, which are cargo carriers of 7,500 tons, and 70 type B ships. The type B ship is a very much more complicated structure, and Admiral Bowles felt they ought to be given an opportunity to get more experience with the simpler type of cargo carriers, and as a result of that we gave then another contract for 60 cargo carriers at 7,500 tons.

Senator NELSON. Are any of the ships to be troop ships.

Mr. PIEZ. Yes; the 70 class B ships are to be troop ships, built for passengers and freight, and ships that will be very useful in the South American trade. They are of 8,000 tons capacity and a very fine type of ship.

Senator NELSON. What is their speed?

Mr. PIEZ. About 16 knots.

The CHAIRMAN. Then you have added since then contracts for sixty 7,500-ton cargo ships?

Mr. PIEZ. Yes.

The CHAIRMAN. Any others?

Mr. PIEZ. They have got to have a large number of orders ahead of them constantly, Mr. Chairman, because they have to have orders six months before the ways become idle. It takes a long time to specify material and get it into the yard.

The CHAIRMAN. The tonnage of the 50 was what?

Mr. PIEZ. Class A.

The CHAIRMAN. Of what tonnage?

Mr. PIEZ. 7,500-ton cargo carriers of 10½ or 11 knot speed.

The CHAIRMAN. These 60 are are of the same class?

Mr. PIEZ. Class A.

Senator VARDAMAN. What per cent does the corporation receive for those ships that are built?

Mr. PIEZ. At present cost, I presume, about 3½ per cent.

Senator JONES. Mr. Piez, my recollection is that one of the prominent shipbuilding men testified before the committee and expressed considerable doubt as to the feasibility and practicability of getting these fabricated materials together. What has been the actual result there at Hog Island?

Mr. PIEZ. The materials have come together splendidly. As a rule, you know the men who have engaged in the business have very little vision of any possible radical changes in that line, but I think they have all been refuted, because both at Hog Island and Submarine and at Merchants the material has come in in many cases in better shape than it is usually delivered in the yards where the fabricating shops are a part of the yard equipment. The Submarine Boat Corporation is launching to-day at the rate of two boats a week.

Senator JONES. So that the flexibility of this method of construction has been absolutely demonstrated?

Mr. PIEZ. Absolutely demonstrated. Of course, the Submarine Boat Corporation has a smaller yard and they started several months earlier, and they were able to complete their yard somewhat earlier.

Senator RANSDELL. Those are all fabricated ships?

Mr. PIEZ. All fabricated ships, 5,000 tons capacity; but they are making splendid progress there.

Senator VARDAMAN. How are you getting along with the building of concrete ships?

Mr. PIEZ. We are getting along pretty well. We have quite a program laid out. We are just about ready, I think, to pour our first ships in our yards.

Senator VARDAMAN. You have not any of them launched yet?

Mr. PIEZ. No. The only one that was launched was the one developed by private enterprise.

Senator VARDAMAN. Did that one work all right?

Mr. PIEZ. Apparently; but it seems to have certain defects that make it a little bit uncertain.

Senator RANSDELL. Has it continued to make voyages?

Mr. PIEZ. Oh, yes; she has gone down to South America, I think.

Senator RANSDELL. She had some trouble on her first voyage—leaked?

Mr. PIEZ. Leaked around the connections, but that has been corrected. The criticism of our own technical department was that she did not have steel enough in deck members and the stern frame was not securely enough anchored to the steel reinforcement of the hull.

Senator RANSDELL. You feel right hopeful of the concrete ship, do you?

Mr. PIEZ. Yes. What we have done in the case of the concrete ship has been to make our preparations first and then go ahead, rather than in the case of the wooden ship, go ahead and then make our preparations. I believe we will get better results and a bigger output. We are building five yards which the Government owns, and we have taken competent contracting concerns and made them superintendents of those yards, along the line of that Wilmington, N. C., contract that we discussed, and we have contracted for 42 ships, totaling about 300,000 tons of concrete.

Senator NELSON. How big are the ships?

Mr. PIEZ. Some 3,500 and some 7,500 tons. We are making the 7,500-ton tankers, because we need so many tankers. We are building some concrete barges. Our technical department, which has been pretty well developed, is serving as an aid to certain of the other Government departments in building river barges. They have developed the plans so that we have got rather a complete program of concrete construction. We have not talked very much about it, and we do not seem to be progressing so fast as some of the concrete enthusiasts want us to do, but we want to be certain before we proceed.

Senator NELSON. About how much is the dead weight of the concrete ship compared with the wooden or steel ship?

Mr. PIEZ. The carrying efficiency, based on our present plan of construction and the present character of the aggregate or mixture that we use is, as I remember it, about 55 per cent of the total displacement in concrete and wood. Concrete is about as efficient as wood as at present designed; the steel ship is about 66 or 67 per cent carrying efficiency.

Senator RANSDELL. Steel is much more efficient than concrete or wood, but concrete is about as efficient as wood?

Mr. PIEZ. Yes. I think concrete and wood ships are heavier than needed, though only slow development can indicate that.

Senator VARDAMAN. Did I understand you to say that the steel ship is lighter than the wooden ship?

Mr. PIEZ. Yes; quite a little.

Senator NELSON. How are you getting along with the wooden shipbuilding program. How many wooden ships have you under contract?

Mr. PIEZ. Oh, we have under contract about 700 ships.

Senator NELSON. How many have you got afloat and in actual service?

Mr. PIEZ. We have delivered, I think, 39, and they are coming out pretty fast now.

Senator NELSON. What tonnage have those ships?

Mr. PIEZ. They average about 3,500 tons.

Senator NELSON. Have they been put into use, any of them?

Mr. PIEZ. Yes.

Senator NELSON. Where?

Mr. PIEZ. They are being put into use in coastwise service, I think, some between San Francisco and Honolulu, and most of the earlier deliveries have been on the west coast.

Senator NELSON. Have you found them all right? Have not a good many of them been leaky and taking in water?

Mr. PIEZ. We have not had so many complaints of that sort. We have two main types of ships, what is known as the Huff type, which is the first we placed.

Senator NELSON. And then the Ferris type?

Mr. PIEZ. The Ferris type. The Ferris type is proving an excellent type of ship. There are several modifications, like the Daugherty type and the Grays Harbor type, but the Huff type has not proved very satisfactory in the matter of steering.

Senator NELSON. I heard there was a complaint against the Ferris type in two directions: First, it was for one main keel and two side keels in it.

Mr. PIEZ. Yes.

Senator NELSON. And that diminishes the carrying capacity of the vessel, and also the loading and unloading of the vessel; what about that?

Mr. PIEZ. There is a measure of accuracy in that, but, unless you put a central longitudinal bulkhead to stiffen the keel you have got to have two keelsons. In handling miscellaneous cargo that is not a serious objection; in handling coal or iron ore, where you have got to use a grab in order to unload, there is objection to that, but that can be overcome, particularly in handling iron ore, by putting in a false bottom and planking it over flush.

Senator NELSON. That diminishes the carrying capacity?

Mr. PIEZ. Yes; but the sister keels have got to be in there to stiffen the frame.

Senator NELSON. Then I have heard another complaint, and that is that the timbers put into these Ferris ships are much heavier and that more timber is used than is necessary.

Mr. PIEZ. Well, there is a difference of opinion on that score, but I do not know whether that can be sustained, Senator. We want to be very sure that the ship is safe, and we do not want her to hog when she gets into service.

Senator NELSON. I have been told that those two matters, the extra keelsons, one on either side of the main one, together with the extraordinary timbers that you put into those Ferris ships, are diminishing the carrying capacity of the vessels at least 25 per cent.

Mr. PIEZ. Oh, no; that is a mistake. The added timbers they put in reduces the normal carrying rating from 3,500 to something like 3,300 to 3,350 ton ships, or there was a reduction in carrying capacity of about 5 per cent, due to the stiffening up.

The CHAIRMAN. It is claimed by some, Mr. Piez, that there could be a modification of the Ferris type without interfering very materially with the orders for material or the contracts and a saving in quantity of timber and in size of timber and in the draft of the vessel and increasing the cargo-carrying capacity of it.

Mr. PIEZ. We are giving that very serious consideration. Mr. Daugherty, down at Orange, Tex., has developed what is known as the Daugherty type. We were developing that type—the first ship,

I think, of the Daugherty class has just been put into service. We are very anxious to see how she behaves in service before making modifications, but we are all ready to adopt the modification of the Daugherty type just as soon as she proves her seaworthiness, and, following our own judgment and the experience of such men as Capt. Pillsbury and Mr. Rosseter, we thought we ought not to make any serious departures from the present Ferris design, because it is probably the stiffest type of vessel we have got. We are not building any more of the Huff type, and in this interim in which we are investigating the question we are going slow. They have developed a very good type out at Seattle. The Puget Sound Dredging & Dock Co. out there have developed a 5,000-ton ship, and we told them to go ahead and build it. The Grays Harbor people have developed a 4,200-ton ship. We have asked them to build some of those. So, you see, we are not stopping in the development at all, Senator, but we do not want broadly to go into experiments or to try out new devices until we are dead certain.

Senator NELSON. Have you let out any contracts for the Daugherty type?

Mr. PIEZ. Only to Daugherty himself. But we had all of the eastern shipbuilders and the western shipbuilders together in a conference some 90 days ago to discuss those points. The development of that Puget Sound ship is largely the result of that conference.

Senator RANSDELL. Have you found any trouble in getting the timber from the southern shipyards for the Ferris type of ships? There was a claim at one time that they could not supply it.

Mr. PIEZ. They are living up to that. The delivery is a little better, but still we have got to send some down from the west coast.

Senator NELSON. You get the larger timbers from the Pacific coast?

Mr. PIEZ. Yes. In the modified type of the Daugherty ship, while the timber cross section is small, the length is considerably greater, and it means we have to ship a much larger percentage from the west coast for this type, and that is why we have hesitated to adopt it. Of course, in the West that is not a problem.

Senator NELSON. I had a different impression, because I was told the Daugherty type could be supplied with all needed timber in the southern yards, but that is a mistake?

Mr. PIEZ. The modified Daugherty type that all the shipbuilders and the classification societies say is the proper type to build.

Senator NELSON. The modified type, but not the one Daugherty himself designed? You could get the timbers for that in the southern yards?

Mr. PIEZ. But we are not quite certain he is right in his design. We work wholly under the dictation of the classification societies, and, of course, if they want modifications and changes in the scantling or in the timber sizes, we have got to make them. The modified Daugherty type requires a very much larger part of timbers to be shipped from the western coast because of their length, not because of the cross section, than does the Ferris type, and, of course, in the West we have no such restrictions. They have unlimited lumber there of superb character.

Senator NELSON. There would be the place to build these Daugherty ships, then?

Mr. PIEZ. Yes. We have several types of about 4,500 tons being built at Portland.

The CHAIRMAN. I believe you would find from a very careful study of the Ferris type that some of those timbers are unnecessarily large.

Mr. PIEZ. And even that is being revamped, now.

The CHAIRMAN. Do you not think these 700 contracts call mostly for the Ferris type—3,500 tons?

Mr. PIEZ. Yes; I should say that perhaps 80 per cent of them.

Senator JONES. Do you think it is the part of wisdom to have a little extra size of timber than to get the ships too weak?

Mr. PIEZ. Yes.

Senator JONES. I should think so.

Mr. PIEZ. Every change makes a delay.

Senator VARDAMAN. Do you never make a change, Mr. Piez, until the ship has been completed and tried out?

Mr. PIEZ. No; we make the changes in the new ships as the result of our experience.

Senator JONES. What is the amount of tonnage that has been completed this year and put into service?

Mr. PIEZ. We have put into service a total of 1,811,000 tons thus far.

Senator JONES. And can you give the tonnage launched?

Mr. PIEZ. We have launched 2,596,000 tons. We have laid keels this year for 4,103,000 tons. We are improving progressively. We turned out last month 340,000 tons, and we expect to come pretty close to 400,000 tons this month.

Senator NELSON. You have 1,000,000 afloat?

Mr. PIEZ. 1,800,000 since the first of this year.

Senator JONES. That is besides the requisitioned ships?

Mr. PIEZ. No. Since August, 2,148,000 tons.

Senator VARDAMAN. How much have you built?

Mr. PIEZ. You mean how much is requisitioned, and how much is our own contract work?

Senator VARDAMAN. Those are new ships?

Mr. PIEZ. Oh, yes; these are all built and delivered under the Fleet Corporation direct.

The CHAIRMAN. You are turning out about 400,000 tons a month?

Mr. PIEZ. We expect to reach 400,000 tons this month. We started in with 96,000 in January; we have worked it up progressively.

Senator NELSON. You mean ships actually afloat?

Mr. PIEZ. Delivered.

Senator RANSDELL. And you expect to continue to progress until the end of the year?

Mr. PIEZ. Yes; unless we strike some untoward conditions.

Senator RANSDELL. Returning to the question of slackers, I find a very interesting editorial in the Philadelphia Evening Ledger of the 19th, yesterday, and I want to call your attention to one or two statements in it. It is entitled, "Root the slackers out of Hog Island Yards," as follows [reading]:

ROOT THE SLACKERS OUT OF HOG ISLAND.

Charges that incompetent slackers and Army shirkers are imperiling the efficiency of Hog Island call for drastic inquiry. If verified, the management of

the Fleet Corporation can not afford to waste an instant in dismissing the soft-snap specialists, whose sudden presence in the yard at the moment when the expanded draft law is operative proclaims them as not only disloyal but as intolerably dangerous.

The influence of such men on their fellow workers can be poisonous and subtle. Already the rate of progress in the yard is said by General Manager Piez to have been greatly reduced. Baseball slackers or clergymen, pool-room loafers, well-off cravens, or common 'bums'—these danger-breeding employees must go.

The progress of the greatest ship-making plant in the world has been handicapped by obstacles for which some legitimate explanation could be given. For such conditions as are now alleged, conditions under which workers are found totally unfit for their vital duties, there can be no palliation. Betrayal of a monumental enterprise must cease.

Mr. Piez, do you know of any reasons why there should be drafting inquiries—is it necessary for Congress to do anything, or can the Emergency Fleet Corporation do everything that is necessary?

Mr. PIEZ. That is what we have been doing for months.

Senator RANSDELL. I think you have done so, but I wanted it from your own lips.

Mr. PIEZ. We have been conscious of that. There is no need for a drastic inquiry. Any large enterprise of that sort, having a large number of employees, will have a certain number of unfit, a certain number of weak employees which it takes a little time to eliminate. We are weeding them out just as fast as possible.

Senator RANSDELL. Is it a correct statement that you said the efficiency was very greatly reduced?

Mr. PIEZ. I did not say that. I say that the efficiency has steadily improved.

Senator RANSDELL. The paper is mistaken in that respect?

Mr. PIEZ. Absolutely, in that respect. What I am saying is that the progress made there to-day is about 50 per cent of what we expect to see when we start to get fairly efficient.

Senator VARDAMAN. What do you mean by "when the yard gets fairly efficient"?

Mr. PIEZ. When the men get experienced.

Senator VARDAMAN. Do the men stay there permanently when they come?

Mr. PIEZ. The turnover is very much reduced there. I can not tell you offhand what that is.

Senator VARDAMAN. Do you think that the men you are training are remaining there at work, a large percentage of them?

Mr. PIEZ. A large percentage of them.

Senator JONES. I want to ask you, in view of one suggestion in that article, has there been any great influx of people seeking employment there since the new draft was contemplated?

Mr. PIEZ. There has not.

Senator NELSON. Mr. Piez, I got a very curious letter the other day. Two years or more ago I was the head of a commission that employed a sculptor to make a statue of an old Senator for Statuary Hall. The sculptor lived on Long Island. He wrote me, and I was very much surprised to have him say that he was at work in the Hog Island Shipyard, and wanted to know if I could not find anybody who would take his cottage on Long Island Sound, that he could not make use of it. Do you use sculptors in your shipyards?

Mr. PIEZ. Is he working at his art, or doing some real work there, Senator?

Senator NELSON. I do not know, but he is evidently working there.

Mr. PIEZ. They have a minister at work at Hog Island, and they say he is one of the best riveters there.

Senator RANSDELL. They have lawyers as well as clergymen.

Mr. PIEZ. I hope so.

Senator JONES. You can train them as well as anybody else, for this work, to be sure.

Mr. PIEZ. Certainly.

Senator JONES. I am curious to know whether this sculptor is a riveter.

Mr. PIEZ. We have got to draw them from other classes altogether and develop them into ship workers, and we may have bakers and waiters. The "work or fight" order is bringing many different characters into Hog Island and into all the shipyards, but that does not say they are not going to make efficient men.

Senator RANSDELL. You have one, a woman, there whom I saw doing electric welding. I have never seen that done before, though that woman was apparently doing it efficiently.

Mr. PIEZ. Many women are now employed in the industries at electric welding, and they are very competent.

The CHAIRMAN. You said in this statement, according to the paper—

That the management of Hog Island was entirely efficient, and that materials for workmen were being provided as required, was emphasized by Mr. Piez, in showing that the situation lies entirely with the men themselves.

Mr. PIEZ. Of course, all those inferences grow out of the fact that suddenly, under rather unusual stimulus, they produced more than they ever did before or than they have produced since.

The CHAIRMAN. You state:

Friday's drive averaged 1,134 rivets per gang at Hog Island. Compared with this are the following figures for other yards, where no drive was made, taken from the average weekly reports: Newport Shipbuilding Co., 2,700 rivets per gang; Federal Shipbuilding Co., 2,500 rivets per gang; Texas Shipbuilding Co., 2,100 rivets per gang; Groton Iron Works, 2,300 rivets per gang; Atlantic Corporation, 2,200 rivets per gang.

Mr. PIEZ. Those are the high drives, Senator. What we wanted to do was to make the men feel that even their effort of Friday was not unusual as compared with the daily output of many yards. It is considerably above the output of any of the new yards.

Senator RANSDELL. The output of Hog Island was considerably above?

Mr. PIEZ. That day.

Senator JONES. What was the nature of the stimulant that got that result?

Mr. PIEZ. The president wagered $1,600 to the riveters that they would not drive 130,000 rivets; that is only $3 per gang.

The CHAIRMAN. What did they bet him?

Mr. PIEZ. They bet him $1,600 that they would; that is, $1 per man, and they drove 195,000 rivets. They had been driving 83,000, 85,000, and 89,000. Of course, they selected the easier rivets to drive that day.

The CHAIRMAN. Admiral Bowles thinks they ought to drive 150,000 rivets at Hog Island.

Mr. PIEZ. I think they can do better than that.

The CHAIRMAN. You have about 600 gangs employed there now?

Mr. PIEZ. 512 gangs is the highest.

Senator VARDAMAN. How many men in a gang?

Mr. PIEZ. Three.

Senator RANSDELL. Mr. Piez, can you think of anything this committee or Congress can do, or is Hog Island getting along about as well as could be expected under all the circumstances?

Mr. PIEZ. That is a management proposition. What we wanted to do was to give a little contest to stir the men up.

The CHAIRMAN. If the committee has no objection, I will put into the hearing two communications from Mr. P. O. Knight, vice president and counsel of the American International Shipbuilding Corporation, and accompanying lists of shipbuilders in their employ.

(The letters referred to, with list attached, are here printed in full, as follows:)

AMERICAN INTERNATIONAL CORPORATION,
*Philadelphia, Pa., August 21, 1918.*

Hon. DUNCAN U. FLETCHER,
*Senate Office Building, Washington, D. C.*

DEAR SENATOR: Having heard so much from certain sources that we did not have sufficient practical shipbuilding men in our ship division, we have prepared a list of shipbuilders in our employ, and I am inclosing a copy of a letter I have just written to Mr. Hurley, as well as copy of the list of shipbuilders, both of which are self-explanatory.

I think you will be satisfied with the situation when you read the inclosed.

Sincerely, yours,

P. O. KNIGHT.

AMERICAN INTERNATIONAL SHIPBUILDING CORPORATION,
*Hog Island, Pa., August 27, 1918.*

Hon. DUNCAN U. FLETCHER,
*Chairman Committee on Commerce,*
*United States Senate, Washington, D. C.*

MY DEAR SIR: I hand you herewith list of the names of men who have given of their time, thought, and attention to the operations at Hog Island and matters connected therewith, and whose salaries are and have been paid for by Stone & Webster, American International Corporation, or New York Shipbuilding Corporation.

Of course, it is impossible now, in a work of this magnitude and covering a period of more than a year, to give you the names of every person who has at some time or other in some way given his time, thought, attention, and work in connection with this situation, as from time to time since the matter was first discussed with Gen. Goethals the officials and men in all of the organizations of the above-named companies have been called upon for aid, assistance, counsel, advice, etc., the more important of whom have been as follows:

Charles A. Stone, president American International Corporation, devotes a large portion of his time to the Hog Island work. Since February 1 he has been in Philadelphia and at Hog Island the major portion of his time.

E. S. Webster, member of the firm of Stone & Webster, has devoted a considerable portion of his time to the work.

George J. Baldwin, senior vice president of American International Corporation and chairman of the board of the American International Shipbuilding Corporation. He devotes a large portion of his time to this work and has done so ever since May, 1917.

Dwight P. Robinson, member of the firm of Stone & Webster, former president and director of American International Shipbuilding Corporation from its organization until March 21, 1918. Mr. Robinson devoted all of his time to the Hog Island shipyard work practically from June, 1917.

Frederick Holbrook, vice president of American International Corporation and president and director of the American International Shipbuilding Corporation from March 29, 1918, to date. Prior to his election as president of the American International Shipbuilding Corporation Mr. Holbrook's firm was engaged under a subcontract in the construction of the piers and wet basin and Mr. Holbrook was in immediate charge. Since his election as president this contract has been canceled and his entire services are now rendered to the work without compensation from the Government.

George O. Muhlfeld, construction manager, division of construction and engineering of Stone & Webster, vice president and director of American International Shipbuilding Corporation. Mr. Muhlfeld has devoted his entire time since prior to the execution of the contract to this work.

H. D. H. Connick, vice president of American International Corporation and vice president and director of American International Shipbuilding Corporation. Mr. Connick has devoted the major portion of his time to the Hog Island work since it was first proposed in May of 1917.

Luther D. Lovekin, chief engineer New York Shipbuilding Corporation, now vice president American International Shipbuilding Corporation. Mr. Lovekin devoted practically all of his time to the Hog Island project from its inception, and after the signing of the contract he was appointed fabricating manager and consulting engineer. For these services he was paid by the Emergency Fleet Corporation, but the amount received was in no way commensurate with the value of the services rendered. Since then he has been appointed vice president of the American International Shipbuilding Corporation and receives no pay from the Government. His time is almost exclusively given to the project.

James F. Case, assistant to the president of American International Corporation. He has devoted a consideration portion of his time to the contract since June 1, 1917, and since January, 1918, has spent more than half of his time in Philadelphia and at Hog Island.

J. S. Lovering, assistant to the president of the American International Corporation, devoted a considerable portion of his time to the Hog Island work from the beginning. Made frequent trips to Washington and Philadelphia. Since January, 1918, has spent approximately half his time in Philadelphia and at Hog Island.

Howard L. Rogers, division manager, division of construction and engineering of Stone & Webster, vice president and director of American International Shipbuilding Corporation. Mr. Rogers has devoted about half of his time to this work since the execution of the contract.

Peter O. Knight, counsel for Stone & Webster and American International Corporation, vice president and counsel of American International Shipbuilding Corporation. Since February, 1918, he has devoted all of his time to this work, except for a brief absence in Florida.

George C. England, treasurer, division of construction and engineering of Stone & Webster, and treasurer of American International Shipbuilding Corporation until April 15, 1918, and secretary of this corporation.

A. R. Patterson, general auditor of Stone & Webster, and since April 16, 1918, vice president, treasurer, and director of American International Shipbuilding Corporation. Since his election he has devoted his entire time to this work.

M. A. Neeland, president New York Shipbuilding Corporation, vice president and director American International Shipbuilding Corporation. He has devoted a portion of his time and has been used in consultation frequently in connection with this work.

F. W. Wood, formerly general manager of the Sparrows Point Yard of the Bethlehem Shipbuilding Corporation, former president of Maryland Steel Co., and director of American International Shipbuilding Corporation since March 8, and now vice president. Mr. Wood, since his election as director, has devoted his entire time to this work.

Thomas W. Streeter, treasurer of American International Corporation, has since February devoted a considerable portion of his time to the accounting department of this work.

W. S. Kies, vice president American International Corporation, directed the negotiations for the purchase of the property and devoted considerable time to the work; also consulted and advised in the preparation of the contracts and made several trips to Philadelphia for consultation during the progress of the work.

W. H. Blood, jr., in charge of the expert department of Stone & Webster, devoted approximately half of his time from October 1 to January 1 to this work, and since then his entire time.

F. N. Bushnell, engineering manager and former chief engineer of Stone & Webster, devoted a considerable portion of his time to the work and in consultation regarding it.

Fred Lavis, consulting railway expert of American International Corporation, has studied and reported on the railroad situation.

M. D. Carrel, worked in the preparation of the plans from the very beginning in May, 1917, and devoted practically his entire time to this work until after the contract was let.

Oscar E. Stevens, vice president, American International Terminals Co., obtained the options and acted in the purchase of the property and devoted a considerable portion of his time to this work from June to September, 1917.

E. E. S. Birtwell, secretary, Stone & Webster, devoted considerable time to office organization.

C. E. Conkey, purchasing department, Stone & Webster, assisted in organizing the purchasing department.

A. F. Henderson, C. H. Allen, W. E. Hawke, W. E. Scully, of the auditing department of Stone & Webster, devoted considerable time to the project.

You, of course, appreciate that in addition thereto the office staffs of all three companies have rendered a multiplicity of services in consultation, accounting, stenography, research, transportation, and in many other matters in connection with the project from the beginning, without compensation from the Government, and you can readily understand the enormous amount of preliminary work and attention that was of necessity given prior to the entering into of the contract in question, as the files of the offices of the American International Corporation and Stone & Webster will show, so that we could know whether or not the contract could be made and carried out and in order that necessary preparations might be made so that the work of carrying out the contract instantly it was entered into could be commenced.

It is true that the Emergency Fleet Corporation has reimbursed the New York Shipbuilding Corporation for the time of Luther Lovekin prior to September 13, but the amount paid by it for his services is insignificant in comparison to the value of the same in the work that he did. It is also true that Stone & Webster rendered a bill to the Emergency Fleet Corporation for $50 for some specific services performed by Mr. A. R. Patterson, previous to his election as vice president and treasurer, but this was only a minute fraction of the services rendered by Mr. Patterson previous to his election. It is also true that the services of Mr. F. W. Wood were paid for by the Emergency Fleet Corporation prior to his election as vice president of the corporation, and it is also true that Stone & Webster rendered a bill to the Emergency Fleet Corporation, which was paid by it, to partially reimburse them for the salary paid by Stone & Webster to Mr. W. H. Blood, jr. It is also true that a bill was rendered to the Emergency Fleet Corporation, of $152, on account of some services rendered by Mr. A. F. Henderson; and it is also true that some few bills, to reimburse either the American International Corporation or Stone & Webster on account of the expenses of some of the above-named individuals, were rendered and paid for by the Emergency Fleet Corporation, but not on account of any salaries or compensation.

You further understand that the agent receives no compensation for the construction of the yard, unless, of course, the contract is terminated at the instance of the Emergency Fleet Corporation, but only a fee for building the ships.

I further call your attention to paragraph D of subdivision 3, Article XIX, of the contract of September 13, 1917, which specifically provides that the agent's fee therein provided for shall cover the services of its executive officers which, for the purposes of this contract shall be deemed to include its president, its board of directors, vice presidents, treasurer and secretary, and their respective assistants not immediately attached to the shipyard. This specific provision of the contract shows clearly what was in the minds of the parties to it, and there can be no difficulty in construing just what the parties meant when the contract was entered into. At the present time the following officers of the American International Shipbuilding Corporation, and who are not being compensated therefor by the Emergency Fleet Corporation, are giving their personal attention and time to the work in hand as follows:

George J. Baldwin, chairman of the board; practically all his time.

F. Holbrook, president; all of his time.

G. O. Muhlfeld, vice president; all of his time.

Walter Goodenough, vice president; all of his time.

F. W. Wood, vice president; all of his time.
H. D. H. Connick, vice president; all of his time.
L. D. Lovekin, vice president; all of his time.
A. R. Patterson, vice president and treasurer; all of his time.
H. L. Rogers, vice president; a portion of his time.
George C. England, secretary; a portion of his time.
M. A. Neeland, director; a portion of his time.
P. O. Knight, vice president and counsel; practically all of his time.

In addition thereto the officials of the New York Shipbuilding Corporation are being called upon from time to time for assistance, counsel, and aid.

In addition thereto, in accordance with the terms of the contract above alluded to, the president, vice presidents, secretary, treasurer, board of directors of the American International Corporation are giving of their time and thought to the work without compensation to the Emergency Fleet Corporation, of whom Mr. Charles A. Stone, the president, is giving practically all his time and attention to the work in hand, and his assistants J. S. Lovering nearly all of his time and Maj. J. F. Case all of his time. And, of course, the members of the firm of Stone & Webster are likewise giving, without being compensated therefor by the Emergency Fleet Corporation, a part of their time to the work in consultation, thought, and direction, namely, E. S. Webster, Henry G. Bradlee, and Russell Robb.

From the foregoing it can readily be seen that the American International Corporation is and has been doing far more than can be required of it under its contract.

Now that the yard has been practically completed—and a work for which the agent in normal times would have received a fee of practically $5,000,000 has been contributed to this Nation without any compensation whatsoever, but at a cost to the agent of an amount probably in excess of $1,000,000—I think it but just to the American International Corporation that this letter should be printed as a part of your hearings, and I would appreciate it very much if you would see that this is done.

Yours, very truly,

P. O. KNIGHT, *Vice President.*

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PHILADELPHIA, PA., *August 21, 1918.*

Hon. EDWARD N. HURLEY,
*President United States Shipping Board,*
*Emergency Fleet Corporation, Washington, D. C.*

MY DEAR MR. HURLEY: Inasmuch as some statements have been made by some of the officials of the Emergency Fleet Corporation that we did not have enough practical shipmen in our organization, we thought it wise that we should make a list of employees in the ship division of the American International Shipbuilding Corporation and send such list to a sufficient number of the officials of the United States Shipping Board Emergency Fleet Corporation, so that they might be acquainted with our situation, as they ought to be as our principal in this matter, and such list has been prepared and is herein inclosed. Of course, it would be a complete answer to any criticism along that line, that the officials of the United States Shipping Board Emergency Fleet Corporation knew full well, before entering into this contract, who they were dealing with and that after months of time and careful deliberation and study the present contract was entered into, but it need not be answered in that manner, as the list of employees speaks for itself.

In transmitting this list to me, Mr. Baldwin, chairman of the board of the shipbuilding company, writes me as follows:

" The list shows these gentlemen to be in error and proves conclusively that we not only have excellent and high-class men in all these departments of ship construction, but practical men who are thoroughly conversant with the business, and are good shipbuilders of long experience. In fact, if we had a larger number of them, we should be doing wrong, because the older shipyards could not afford to have their forces further depleted. You will notice this state of things runs through the entire ship division, and the bulk of the men are actually at work on the ships themselves, where they ought to be, and not in the offices or the more theoretical part of the work. The designing department will have completed its work in another 30 days and will be largely disbanded, while the construction department is now in process of elimination and will shortly be dissolved.

Permit me to call your attention to the three stages of our work:

"The first was the simultaneous designing and construction of the yard, in itself an undertaking of immense difficulty. This has now been successfully accomplished, and I do not believe any body of men in the United States could have produced a result more satisfactory as a whole. The yard now stands as the most powerful tool at the disposition of the United States Government for the making of ships in the large numbers required and has the greatest potential capacity of any shipyard in the world.

"The second step was the designing of the boat, a matter of such difficulty that none of the experienced shipbuilders of this country believed it could be done, and none was willing to undertake it. There was no other way in which ships could be produced in adequate quantities than by so designing them and their component parts that they might be built in the existing shops of the country, and, when built, fitted together accurately and assembled as a completed ship. I know of no other yard which was either capable of doing this or which believed it possible that the task could be satisfactorily accomplished, and I call to your attention the fact that at least as far as the hull is concerned the wisdom of this method has been definitely proved in the face of every doubt, every criticism and every unwillingness of the old-line shipbuilders to attempt it. Without this designing department perfected in every detail as it has been, the ships could not have been produced in the quantity desired.

"The third stage of the work is the actual assembling of the parts in the completed vessel, and the preparatory work has been so thoroughly done, the assembling plant so perfectly adapted for its work, that no doubt remains of its final success:

"It is evidently impossible to thoroughly organize a ship-assembling force until construction has adequately progressed, but I call to your attention the fact that the men were on hand and ready, and that this actual constructing organization is now being daily put into shape and should, in the course of the next 30 days, be functioning smoothly and more rapidly than at present. By the end of several months of organization necessarily required in so large an undertaking, the volume of ships turned out should be entirely satisfactory, and should come up to the highest expectations of those competent to judge.

"I think these ideas should be submitted to those in command of the Emergency Fleet Corporation work in order that any possible doubts as to the capacity of American International Shipbuilding Corporation for its work should be thoroughly and decidedly settled so that the work may proceed uninterruptedly from now on and that the whole-hearted assistance and backing of every official of Emergency Fleet Corporation be accorded to us without reservation or doubt."

Of course, delivery of the ships is the only thing that you are interested in, and time alone will take care of that situation. If we have no shipbuilders and deliver the ships we will be wonders. If we do not deliver them, it is quite immaterial whether we have shipbuilders or not. So performance after all is the only thing that will count in this matter, but I wanted the officials of our principal to be acquainted with this situation so they might be informed in the future as to just what practical shipbuilding men we had in our organization.

I am sending a copy of this letter, as well as a copy of the list in question, to Mr. Whipple, general counsel of the Shipping Board, Mr. Schwab, Mr. Piez, Mr. Coonley, Mr. Cuthell, Mr. Colby for the information of the trustees of the Shipping Board, and to Senator Fletcher.

Yours, very truly,

_____.

**List Showing Employees in the Ship Division of the American International Shipbuilding Corporation Who Have Had Training in Ship Construction Prior to Employment by this Corporation and Sketch of Ship Construction Experience of Those Holding Positions Above the Grade of General Foremen.**

AUGUST 13, 1918.

SHIP DIVISION.

GENERAL ADMINISTRATION.

F. W. Wood, vice president: Massachusetts Institute of Technology, 1877 mining engineer; 1890 laid out and built shipyard at Sparrows Point, which was constructed especially for the building of merchant ships and is one of the best of its kind in the country. Elected president of the Maryland Steel Co.

with the duties of president and general manager. Organized yard and retained the above duties with the Maryland Steel Co. up to 1918.

Among the ships built were two ships for the Boston Steamship Co. of 12,500 tons each, the *Maine* and *Missouri*, for the Atlantic Transport Co.; 14 ships for the American-Hawaiian Steamship Co., 10,000 tons each; colliers *Neptune*, *Jason*, and *Orion*, 12,500 tons each. Also colliers *Mars*, *Hector*, and *Vulcan* for the Government, 7,700 tons each. Also built ships for the Munson Steamship Line and for the Bull Line, and two floating docks, one for the Philippines and one for Algiers.

Walter Goodenough, vice president: Graduated from Michigan Agriculture College, 1895, mechanical engineering; 1895, drafting room of Great Lakes shipyard; summer of 1896 spent as oiler on Lake steamships; balance of 1896 spent as draftsman in Great Lakes yards; 1897, in the office of Horace See, naval architect and marine engineer. One year with the Atlas Steamship Co.; then went to the Bath Iron Works as draftsman in charge of design; Maryland Steel Co. as chief draftsman; New York Shipbuilding Corporation as draftsman and designer; assistant general manager Atlas Steamship Co.; also to sea as engineer; Bath Iron Works as designer. The above experience covers the years 1895 to 1903.

L. D. Lovekin, vice president and consulting engineer: Started as a rivet passer at the yard of William Cramp & Sons in 1881. Worked in every branch of shipbuilding until 1885, as a helper, then served an apprenticeship at pattern and model making at the works of T. B. Luzier & Co., making patterns for all classes of marine work; 1889 went to the shipyard of Charles Hillman & Sons as foreman of the pattern and model making shops; 1891 entered the drawing room of this same company; 1892 returned to the William Cramp & Sons Ship and Engine Building Co. as a draftsman, made leading draftsman in 1895, then chief draftsman in 1899; left October, 1900, to accept the position of chief engineer of the New York Shipbuilding Co., of Camden, N. J., remained until October, 1917.

J. T. Martin, consulting engineer: Received my early training in the public schools of Wilmington. Started to work at Pusey & Jones, Wilmington, Del., in 1876. Worked seven years in machine shop building marine engines and helped to install same on ships. Was promoted to subforeman having charge of a portion of the work. Eight years at Jackson & Sharp, Wilmington, Del. General foreman of the machine shop, having charge of the repairs on the marine railway. Five years with the Maryland Steel Co., Sparrows Point, Md. General foreman of the machine shop and building marine engines.

Four years with the Philadelphia Engineering Works in Philadelphia, building air compressors and some marine engine work.

Eighteen years with the Maryland Steel and the Bethlehem Steel Co.'s, Sparrows Point, Md.—4 years as superintendent of all of the shops which embraced the building of the engines, boilers, and the fabricating of the material for the hulls; 14 years as general superintendent of the yard, having charge of the building of the hulls and the machinery, installation of the same, outfitting of the ships, trial trips, and delivery.

Came with the American International Shipbuilding Corporation January, 1918, as manager of ship construction.

G. H. Johnston, assistant: Maryland Steel Co., marine department.

Marine draftsman 9 years in connection with both machinery and hull details; three years as general outside man and expediter as go between from yard and shop to drafting room covering general shipbuilding operations, including ships, outfitting, equipment, etc.; six years responsible charge of hull engineering design and details, covering steering gears, deck machinery, deck outfit, rigging, nautical equipment, hull fittings, etc.

Bethlehem Shipbuilding Corporation: Plant engineer, 2 years in complete charge of all plant improvements, construction work, etc., in connection with general shipbuilding operations and ship-yard requirements; three months as assistant general superintendent.

Left last position to go with the American International Shipbuilding Corporation January 1, 1918.

Total experience, 20 years.

Technical training: Studied mechanical-engineering course of the International Correspondence School.

S. C. Whorf, assistant: Graduated from Harvard University, class of 1899, in engineering.

September, 1900, employed in the engine-drafting room at the Fore River Ship & Engine Co., Weymouth, Mass., afterwards known as the Fore River Shipbuilding Corporation, Quincy, Mass. After spending about three years in the drafting room, I followed work in the shops in connection with the drafting office. I was finally made assistant chief engineer, and in this position I was brought in close touch with the shops, installation of machinery on ships, trial trips, engineers' outfit, delivery of ships, tests, and inspection work outside the plant.

I was later put in charge of the battleship *Nevada*, of both hull and machinery. I resigned my position with the Fore River Shipbuilding Corporation in September, 1915.

In the spring of 1916 I accepted a position with the Argentine Naval Commission to assist in building two oil tankers. I was sent out to the Great Lakes Engineering Works at Ecourse, Mich., in charge of the oil tanker which they were building for the Argentine Government. From here I returned to Quincy to assist the commission in the finishing of the tanker which was being built at the Fore River Shipbuilding Corporation.

After the ships were finished I accepted a position with the Bethlehem Steel Corporation in July, 1917, attached to the office of H. S. Snyder, vice president, in charge of shipyards.

I was located at the Harlan & Hollingsworth Shipbuilding Corporation, Wilmington, Del. My duties here were the standardization of engineering forms, plans, methods, shop routine, and the preparation of a bill of material for structural drawings, recommendations for ordering hull steel, etc.

I came with the American International Shipbuilding Corporation in December, 1917.

B. C. Sloat, assistant: Cornell University, class of 1902; mechanical engineering, specializing marine engineering and naval architecture.

Six years with Newport News Shipbuilding & Dry Dock Co. Engine and hull drawing rooms, scientific and estimating departments, and assistant to superintendent of hull construction.

One year with United States Shipping Board as representative at the plant of the Traylor Shipbuilding Corporation.

W. A. Mackey, assistant: Structural-steel drafting and designing, Edge Moor Bridge Works, April, 1896, to May, 1899.

Drafting and designing buildings, New York Shipbuilding Co., May, 1899, to July, 1900.

Assistant chief hull structural draftsman, New York Shipbuilding Co., July, 1900, to December, 1902.

Assistant chief hull constructor, New York Shipbuilding Co.; assigned to drafting and fabrication and consulting from December, 1902, to February 1, 1917.

Assistant to general manager of Pennsylvania & New Jersey Shipbuilding Cos., of Gloucester, N. J., and Pusey & Jones Co., Wilmington, Del., from February 1, 1917, to June 24, 1918; assigned to general work and organization and systems.

June 24, 1918: A. I. S. C.

Education: High school, night schools, and various tutors.

DEPARTMENT OF HULL CONSTRUCTION.

W. B. Fortune, general superintendent: 1899 to 1901, superintendent of building, New York yard; 1901 to 1909, assistant superintendent hulls, New York shipyard; 1915, designed six barges for floating span of Quebec Bridge.

Technical school or college attended—None.

Harvie Wharton, assistant general superintendent, in charge of ways 1 to 20 and wet basin: With the Cramp Co. nearly 30 years, from helper boy to ship joiner; to contractor ship fitter; to charge of all hull construction, from tugboats, torpedo-boat destroyers, to battleships and submarine, also merchant ships.

Then to Seattle Construction & Drydock Co. as superintendent steel construction.

Then to Alameda branch Union Iron Works, California, as superintendent steel construction and assistant building new plant.

Then to the Ames Ship Building Co. dry dock, as superintendent steel construction and assistant building of plant and equipment and to travel as representative for material and supplies.

Then to American International Ship Building Corporation as assistant general superintendent ship contruction, in charge ways 1 to 20 and wet basins.

S. C. Sargent, assistant general superintendent, in charge of ways 21 to 50 Bethlehem Ship Building Corporation, Sparrows Point plant, 1911–1918.

Length of service, seven years, divided as follows: Three months in mold loft, six months as foreman fitter, three years as assistant to superintendent of hull construction in charge of piecework, nine months as general foreman riveter, two years six months as assistant superintendent hull construction.

In charge of completing hulls after launching during a period of five years. Also estimating cost of new construction and repair work on hulls.

M. I. T., 1908–1911.

Course, naval architect and marine engineer, class of 1912.

J. D. MacBride, assistant to Mr. Wharton on ways 1 to 10; Bath Iron Works, May to September, 1899, ship fitter; John Brown & Co., October, 1899, to October, 1900, draftsman (Scotland).

New York Shipbuilding Co., November, 1900, to March, 1901, loftsman.

Cramp Shipbuilding Co., March, 1901, to June, 1904, draftsman.

Fore River Shipbuilding Co., June, 1904, to July, 1906, draftsman.

J. R. Worcester & Co., July, 1906, to September, 1907, estimator.

Fore River Shipbuilding Co., September, 1907, to October, 1911, leading draftsman.

Argentine Naval Commission, October, 1911, to October, 1915, inspector.

Electric Boat Co. (submarines), October, 1915, to October, 1916, leading draftsman.

Sharsey, Raymond & Page (Herreshoff Manufacturing Co.), October, 1916, to April, 1917, designer (looking out for work in yard).

Maryland Ship Building Co., April, 1917, to December, 1917, yard superintendent.

American International Ship Building Corporation, January, 1918.

Massachusetts Institute Technology, course in naval architecture, 1895–1897.

Lawrence Scientific School, course in mechanical engineering, 1897–98.

Harvard University.

Glasgow University, Scotland, course in naval architecture, 1898–99.

Have been sailing and handling small boats intermittently since 12 years of age.

Went lobster fishing during summer vacation from 12 until 19 years of age.

Was quartermaster on harbor steamer (Nantasket Steamboat Co.) summer of 1896.

H. F. Brown, assistant to Mr. Wharton on ways 11 to 20: Massachusetts Institute of Technology (Lowell Institute), class of 1908. Mechanical course.

From April 1, 1913, to March 6, 1918, employed by Boston Molasses Co. as marine superintendent and chief engineer and by the American Molasses Co. as consulting engineer in charge of all ship construction.

During that time supervised the construction, installation of machinery, and fitting out of two steel steamers and five steel barges at various shipyards, having designed one of the steamers and the five barges.

From August, 1912, to April, 1913, with the Cuba Distilling Co., inspecting the building and fitting out of vessels for that company at various shipyards.

From February, 1908, to August, 1912, assistant to the naval inspector of machinery at the works of the Fore River Shipbuilding Co.

From December, 1905, to February, 1908, at the Boston Navy Yard as foreman machinist.

From 1904 to 1905 with John Hefferman as general foreman.

From 1903 to 1904 with Moran Bros. in the hull drawing room.

From 1894 to 1903 was employed in the Union Iron Works, San Francisco, as draftsman and material chaser in the hull department. In the same capacity at Risden Iron Works, and made one cruise in the United States Navy as chief machinist.

D. Hennie, superintendent, wet basin: Grammar-school education.

Roache's Shipyard, Chester, Pa., five years as apprentice and ship fitter; Harlan & Hollingsworth Shipyard, Wilmington, Del., ship fitter, two months.

Pusey & Jones's Shipyard, Wilmington, Del., ship fitter, 10 months.
Erie Drydock & Shipbuilding Co., Buffalo, N. Y., ship fitter, one month.
Cramps Shipyard, Philadelphia, Pa., ship fitter, one year.
Brooklyn Navy Yard, first-class ship fitter, one year.
Brooklyn Navy Yard, foreman, eight years.
Boston Navy Yard, master mechanic, 20 years.

In charge of all hull work on ships of the following trades, both repairing and building: Shipwrights, ship fitters, riveters, chippers and calkers, drillers, holders on, wire workers, sheet-metal workers, brass and iron molders, angle smiths, blacksmiths, furnace men, flange turners, mold loft men, hull machinists, ship plumbers, nickel platers, coppersmiths, pipers, galvanizers, boiler makers, acetylene operators, ship cleaners and scalers, laying linoleum on battleships, and all work including all trades outside of engine and fire room and all shops of the above trades.

W. M. Brown, superintendent yard No. 2: Apprentice in joiner shop from 1888 to 1892. Worked as journeyman joiner from 1892 to 1901. Worked in mold loft from 1901 to 1903.

Subcontractor at hull coast from 1903 to 1913. Subcontract was abolished in 1913 and I returned to mold loft in 1913 and was there until I came to the island in March, 1918.

The above time was served in the William Cramp & Sons Ship & Engine Building Co., Philadelphia.

D. L. Myrtetus, superintendent yard No. 3: Summer of 1902 and 1903 New York ship mold loft; 1904 to 1906, New York ship hull department drawing room; 1907 to 1917, New York ship hull department drawing room.

Hull draftsman up until about four years ago; since then have been in charge of work and have had charge of the following types of ships: Battleships, oil tankers, collier, freighter, and cargo-passenger ships.

My duties consisted of the following: Making layouts and order all the steel for a complete ship, getting out the plans for all parts of the hull, having same approved by Lloyds or the Navy Department, getting the plans and bills of material to the mold loft, straightening out any difficulties that arose, following the same procedure on the actual construction of the ship on any work that came wrong or was extremely difficult up until the ship was delivered to the owners.

Graduate of the Camden (N. J.) Manual Training High School, class of 1904.

Graduate of Drexel Institute, Philadelphia, 2-year course (night) in building construction.

J. A. Long, superintendent yard No. 4: Went to public school. Graduated from Williamson Trade School, Delaware County, Pa., 1894 to 1897. Cramps Ship and Engine Building Co., 1897 to 1918. Joiner shop 1897 to 1901. Mold loft 1901 to 1903. Subcontractor 1903 to 1913 in hull construction. Mold loft 1913 to 1918. Sent to the Ford Motor Co., Detroit, Mich., to look after U-boat chaser. Developed shell plating and checked all drawings and making corrections on drawings and changing lines on body plan on mold loft floor. Ford Motor Co., February, 1918, to March 11, 1918. America International Shipbuilding Corporation, March 11, 1918.

Mr. C. S. Glaspell, superintendent yard No. 5: Seventeen years with New York Shipbuilding Corporation. Two years erector leader; three years foreman erector; three years assistant ship foreman; nine years ship foreman.

I. A. Higgins, superintendent yard No. 6: I learned the trade of ship fitter at Harlan & Hollingsworth Corporation, Wilmington, Del., under Mr. John McDowell, superintendent hull construction. Mr. McDowell is now chief surveyor of department of standards of the American International Shipbuilding Corporation. I worked at several branches of the structural trade of the American Bridge Shop, Edgemore, Del. My sole object in entering the bridge shop was to get experience and to learn their system. My chief reasons for working in the following yards as ship fitter was to get experience in battleships and to learn their system of ship construction.

Roach's shipyard, Chester, Pa.; Naphey & Levy shipyard, Philadelphia, Pa.; Fall River shipyard, Quincy, Mass.; Boston Navy Yard, Boston, Mass.; East Boston drydock, Boston, Mass.; Newport News Shipbuilding Co., Newport News, Va., as first-class ship fitter and later as leading-man ship fitter. From here I returned to Harlan & Hollingsworth shipyard, Wilmington, Del. About this time they were transferring their wooden car department to steel car department.

Having had experience in bridge shops, I was transferred from the ship department to the steel-car department. I started in as foreman template maker and worked at this about three months. I was then made assistant to general foreman in the car department. I was in this position about three years. From there I was then promoted to general foreman of stel-car department. I left this position in the latter part of 1915, due to lack of work. I worked three months in the Charleston Navy Yard, Charleston, S. C., as first-class ship fitter. I had taken examination as leading-man ship fitter with five others and was the only successful one in receiving the appointment as leading ship fitter from Secretary Daniels. Left the navy yard September 15, 1916, and returned to Harlan & Hollingsworth Corporation as general foreman in the steel-car department. I was in this position about three months when I realized that my services were needed in the shipyard. I asked for and received transfer to the ship department as general foreman finisher. I resigned this position to become general foreman for Terry Shipbuilding Corporation at Savannah, Ga., under their general manager, Mr. Norman E. McClellan, who was formerly chief surveyor of the American bureau of shipping and who is now general manager of the Montreal Transportation Co., Montreal, Canada. My next position was general foreman ship fitter of yard No. 5, Hog Island, Pa.

I have no technical school or college course, but have burned midnight oil over naval architect books.

A. B. Sheppard, superintendent yard No. 7: Common-school education. Learned boat building when a boy, including loft work on wooden boats, with my father. Built the highest grade wooden boats for seven years. Have worked at some branch of boat or ship work on every opportunity presented all my life and have studied it extensively. Have worked for the William Cramp Ship & Engine Building Co. and the Heafey & Levy Ship & Engine Building Co. at joiner work years ago—dates not remembered. Was two years shipwright for Salem Freight Co., Salem, N. J.—two passenger and the freight steamers. During the last three years have worked for New York Yacht, Launch & Engine Co. on heavy yacht repairing. Standard Shipbuilding Corporation, Shooters Island, N. Y., as lineman in loft and laying off in yard. Samuel Moore & Sons Corporation, Elizabeth, N. J., as assistant loftsman. Downey Shipbuilding Corporation, Staten Island, N. Y., foreman leftsman on ends of standard ship.

W. C. Blandford, superintendent yard No. 8: Two years Superior Shipbuilding Co., subcontracting hull construction. Four years Lewis Nixon. Present shipyard Elizabeth, N. J. Subcontractor on hull construction. One year Shooters Island, N. Y., boat foreman. One year Moran Bros., Seattle, Wash. Eight years erecting steel buildings and bridges in Cuba and Porto Rico, being associated in business with my brother under the firm name of the Blandford Construction Co.

H. W. Moffat, superintendent yard No. 9: Graduate of Cornell University, mechanical engineer, 1910. For three summers before 1910 worked at Maryland Steel Co., marine department, with the installation machinists. For about six months had charge of all reamers in the yard; then all drillers. Was inspector for the Maryland Steel Co. for about six months. Was quarterman fitter for the balance of of five years.

Shipbuilding then being slack I went with the Pennsylvania Steel Co. as resident engineer on structural steelwork at Steelton and Sparrows Point. After that job was finished I spent a year in the drafting room at Sparrows Point, most of which was spent in checking.

I. C. Belknap, superintendent yard No. 10: Triggs's Yard, Richmond, Va., one year, laying out. Fore River Shipbuilding Co., five years, mold loft. New England Ship & Engine Co., New London, Conn., one-half year. Staten Island, one-half year. C. L. Sabury & Co., eight years, in charge of construction work. William Gardner N. A., New York City, one and one-half years. Harlan & Hollingsworth, one-half year.

This information received from Mr. Belknap over the phone. Connection bad.

J. F. Clouser, supervising ship carpenter yards 1 to 4 and wet basins: Learned trade with father at Wilmington, Del. Thirty years as ship carpenter foreman at Cramp's S. & E. B. Co., Beach and Ball Streets, Philadelphia, Pa. I have been on ship work from the laying of the keel to the masthead of the ship all my life and in the capacity of leader, shipwright.

| | Total number on the work. | Number who have had previous shipbuilding experience. |
|---|---|---|
| General foreman fitters | 16 | 12 |
| General foreman riveters | 10 | 9 |
| General foreman erectors | 19 | 3 |
| Foreman fitters | 51 | 43 |
| Foreman riveters | 57 | 46 |
| Foreman erectors | 53 | 7 |
| Foreman bolters up | 52 | 16 |
| Foreman luerman | 14 | 3 |
| Foreman drillers and reamers | 44 | 21 |
| Foreman chippers and calkers | 37 | 30 |
| Foreman riggers | 3 | 3 |
| Foremen ship carpenters | 14 | 13 |
| Leadermen ship carpenters | 92 | 44 |
| Total | 462 | 250 |

DEPARTMENT OF MACHINERY INSTALLATION AND OUTFITTING.

C. S. Bookwalter, assistant to vice president, in charge: Entered Naval Academy in 1890; graduated in 1894. Took the usual course covering the building and operating of ships. Sea service from 1894 to 1890. Duty in deck and in engine room. 1899 in charge of naval station, Habana, Cuba, floating equipment, etc. 1899–1900, inspector of electrical equipment General Electric Co., Schenectady, N. Y. Took regular course of students in addition. Three years' sea service on converted merchant ships. Commander of torpedo boat *Destiny;* on *Macdonough* one year. Fitted her out and acted as commanding officer and engineer officer. Two years instruction in naval construction and marine engineering, Naval Academy. Fitted out *Georgia* and chief engineer of *Georgia* one year. Resigned and went with Union Electric Light & Power Co. to St. Louis, Mo. Sent by them to Paducah, Ky., in charge of water transportation—title manager of transportation. Built our own dry docks and all floating equipment, steamboats, barges, pump boats, etc. Operatod there for two years when bought my own property.

Joseph Pope, assistant: Graduate from Massachusetts Institute of Technology, class 1918. Course in naval architecture and marine engineering. Experience, 10 months in yard of Fore River Shipbuilding Co., as helper in ship fitting, steam engineering, and outside machinist departments.

John Gardner, general superintendent, machine installation: Began apprenticeship June 12, 1891, Roach's shipyard, Chester, Pa.; boiler maker, machinist, draftsman; served six years apprenticeship Morgan Iron Works, N. Y., leading draftsman and dry dock leader. Trigg's shipyard, Richmond, Va., leading draftsman. Engineer department Harlan & Hollingsworth, draftsman. Morgan Iron Works, second time, chief draftsman. Gardner & Cox, New York naval architects and marine engineers, leading draftsman. Crescent Shipyard, Elizabethport, N. J., leading draftsman. Maryland Steel Co., Sparrows Point, from leading to chief engineer; draftsman and outside machinist and outfitting. Seattle Construction and Dry Dock Co., chief draftsman. American International Shipbuilding Co., general superintendent machinery installation and outfitting. Total, 27 years.

W. H. Lafferty, assistant general superintendent: Two years Brooklyn Navy Yard, first class machinist. Three years New York Shipbuilding Co., subcontractor piping installation. Three years Wm. Cramp & Sons, subcontractor piping installation. Three years John Baizley Iron Works, outside superintendent, piping and machinery installation and general repair work.

J. H. Hufman, assistant general superintendent: Apprenticeship, Maryland Steel Co., Sparrows Point, 1889 to 1893; Newport News Shipbuilding Co., 1893 to 1895; returned to Sparrows Point; night foreman 1895 to 1896. Philadelphia Engineering Works, 1896 to 1898. League Island, 1898, quarterman of naval repair at Key West, Fla., during Spanish-American War, and returned to League Island after peace was declared. In 1899 went to Sparrows Point as foreman erector and superintendent machinery installation, after 10 years went to Pool Engineering Co., Baltimore, as foreman of machine shop general engineering work and battleship machinery. for Newport News Co.; 1915 to

1917, superintendent of Hyde Windlass Co., Bath, Me. Returned to Sparrows Point as foreman of machine shop, 1918. Steelton High School.

L. A. Turnbull, superintendent of machinery installation: Birkenhead Institute and Liverpool University, England. Mersey Docks and Harbor Board. Liverpool, England. Clyde Engine Works, Birkenhead, England. Bromsel Engineering Co., Liverpool, England. 1895–1900, apprentice engineer erecting and installing engines and boilers; 1900 1908, marine engineer White Star Line Steamship Co., England; 1908–1909 engineer surveyor, Travelers Insurance Co., New York City; 1909–1911 engineer surveyor, Frankfort Marine Insurance Co., New York City,; 1911–1917 chief engineer surveyor, Globe Insurance Co., New York City. Extra First Class Marine Engineer's Certificate, British Board of Trade. Retired lieutenant, engineer British Royal Naval Reserve, 1903–1917. American citizen by naturalization.

A. W. Geist, jr., superintendent of machinery installation: Massachusetts Institute of Technology, Class 1906. Electrical Engineering. Entered the employ of the Luckenbach Steamship Co., May 1, 1915, as an inspector, looking after the machinery and hull erection of their five 12,250 ton cargo ships being built at the Fore River Shipbuilding Corporation, Quincy, Mass. Was taken over by the Emergency Fleet Corporation at the time all merchant ships were commandeered. Left the Emergency Fleet Corporation in January, 1918, entered the American International Shipbuilding Corporation February, 1918.

C. E. Ireton, Superintendent of Piping on Ways:

John Dialogue Shipbuilding, one year. Machinist, New York Shipbuilding Co., fourteen years machine shop. Pipe and installation department, holding position as assistant. Foreman on all class of Government work, also merchant. Chester Shipbuilding Co., three years as assistant engineer and general superintendent of pipe, copper, and installation department.

F. Ebelhare, superintendent of piping wet basins: 4 years at William Cramp's gun shop, apprentice; 6 months James Riley, Washington Avenue wharf, Philadelphia; 4 months junior engineer, American Line steamship *Endianna;* 8 months Midvale Steel Works, gun and shafting work as machinist; 5 years Kensington Engine Works, Philadelphia, leading-man machinist; pipe fitter and engineer, marine and stationary work; 13 years at William Cramp & Sons, 2 years as machinist and 4 years as leading man, 7 years as quarterman and foreman machinist; pipe fitter and ordnance on ships.

Thomas Lawson, superintendent of pipe shop: December, 1893, to March, 1898, Joseph Oak & Sons, apprentice; March, 1898, Hillman Shipbuilding Co., foreman December, 1898, January, 1900, to August, 1902; September, 1902, to November, 1903, New York Shipbuilding Co.; November, 1903, to November, 1905, personal business; November, 1905, to March, 1918, leading man and quarterman, Philadelphia Navy Yard.

John Strachan, general superintendent of outfitting: Served apprenticeship with Dunsmuir & Jackson, marine engineers, Gowan, Glasgow, Scotland; 4 years through the shops and two years drawing office on engine details and pipe arrangements. One year in the drawing office of Alex. Stephen & Sons, Linthouse, Glasgow, Scotland, in pipe and general arrangements of machinery; 17 years with the Allan Line of steamers, Glasgow, Scotland, 14 years of which were in the position as chief engineer in vessels of from 5,000 to 12,000 tons, single and twin-screw ships. During this time also supervised complete alterations and installation of new machinery in some of the ships at Denny Bros., Dumbarton, Scotland, also supervised the building of the twin screw steamers *Grampion* and *Hesperian* at Alex. Stephen & Sons, Linthouse, Glasgow. Four years with United Fruit Co. as chief engineer, eight months of this spent supervising the building of 12 sets refrigerating machine at Joseph J. Hulls, Dartford, Kent, England. Nine months supervising the building of one of their steamers of Workman, Clark & Co. Shipyard, Belfast, Ireland. Four years in the engineering department of Babcock & Wilcox Co., New York, surveying steamers, representing Babcock & Wilcox Co. on first voyage of steamer, testing and doing all kinds of experimental work, burning coal, oil, and powdered fuel.

Five years at the Glasgow Royal Technical College, engineering course.

L. H. Porter, marine superintendent: Twenty-six years sea service, the last 18 years of which was master of steamships (cargo and passenger) from 2,500 tons to 8,000 tons. Three years as owners' representative superintending construction and outfitting of cargo and passenger vessels of 3,600 and 8,000 tons units for the United Fruit Co. at yard of Workman, Clark & Co., Belfast, Ireland. Left high school at 15 years of age and went to sea.

William Stirrat, compass adjuster: Twenty years with various British steam and sailing ship firms from apprentice to first mate, holding master's license.

Six years with Panama Railroad and Panama Canal Co. in their freight receiving and forwarding department and as mate and master of floating equipment in ocean-going service.

| | Total. | Previous experience. |
|---|---|---|
| Outfitting: | | |
| General foremen | 6 | 6 |
| Foremen | 8 | 8 |
| Subforemen or leader men | 14 | 14 |
| Electrical: | | |
| General foremen | 7 | 3 |
| Foremen | 7 | 3 |
| Subforemen | 0 | 0 |
| Machinery installation: | | |
| General foremen | 22 | 19 |
| Foremen | 70 | 42 |
| Subforemen | 86 | 52 |
| Total | 220 | 147 |

DEPARTMENTS OF MAINTENANCE OF WAYS AND TOOLS.

G. J. Stephen, superintendent maintenance of ways: Graduated in mechanical engineering from Drexel Institute, Philadelphia, Pa. Engineering experience in connection with open hearth furnaces, blast furnaces, blooming mills, bar and angle mills, and plate mills with the following steel companies: 8 years Pennsylvania Steel Co., Steelton, Pa.; 1½ years Lackawanna Steel Co., Buffalo, N. Y.; 1½ years Carnegie Steel Co., Sharon, Pa.; 2 years Bethlehem Steel Co., Sparrows Point, Md.

J. A. Carlin, superintendent maintenance electric acetylene: Supervising welding and cutting at the Philadelphia Navy Yard, League Island, four years. Service engineer for the Davis Bouronville Co., New York. Stock Exchange Building, Philadelphia, doing difficult operations through the various yards in this particular connection about five years. United States Steel Corporation yards, Newark, N. J., Mobile, Ala.; Wm. Cramp Ship & Engine, Philadelphia, Pa.; New York Ship Building Co., Gloucester, N. J.; Pusey & Jones Corporation; Pennsylvania Ship Co., Gloucester, N. J.; New Jersey Ship Co., Gloucester, N. J.; Wilmington Plant, Wilmington, Del.; Harlan & Hollingsworth, Wilmington, Del.; Sun Ship Co., Chester, Pa.; Baltimore Dry Dock & Ship Co., Baltimore, Md.; Newport News Dry Dock & Ship Building, Newport News, Va.; Virginia Ship Co., Alexandria, Va.; Terry Ship Co., Savannah, Ga.; Bethlehem Steel Co., South Bethlehem, Pa.; Camden Forge Co., Camden, N. J. Attended Banks Business College, Philadelphia, Pa. Instructor on metals, Davis Bouronville Co., Welding Institute, New York.

H. E. Miller, assistant superintendent maintenance electric acetylene: Philadelphia Navy Yard, League Island, 5 years.

The above is a boilermaker by trade, having served his apprenticeship and worked as a mechanic with the Lebanon Boiler Works, Lebanon, Pa.

Nothing more than a grammar-school education.

T. H. Haley, superintendent maintenance pneumatic and small tools: Three years with Shone Pressed Steel Co., charge pneumatic and small tools; 17 years with Maryland Steel Co., charge pneumatic and other small tools connected with hull construction.

A. H. Hausheer, division supervisor, pneumatic tools, ways 1 to 24: Eighteen years at Cramp's shipyard, charge of pneumatic and small tools used in hull construction.

J. J. Gallaher, division supervisor, pneumatic tools, ways 25 to 50: One year at Bethlehem Steel Co., Sparrows Point, Md. General repairman on pneumatic and small tools used in hull construction.

| | | |
|---|---|---|
| Master mechanics | 2 | 0 |
| Assistant master mechanics | 1 | 1 |
| Machinist foremen | 10 | 4 |

| | | |
|---|---|---|
| Rigger leaders | 10 | 7 |
| General foreman pipe fitter | 1 | 0 |
| Assistant general foreman pipe fitter | 2 | 1 |
| Foremen pipe fitters | 8 | 3 |
| Electric acetylene foremen | 11 | 5 |
| Electric acetylene leaders | 1 | 0 |
| Total | 46 | 21 |

DEPARTMENT OF SHOPS.

F. F. Gallaher, general superintendent shops: Three years superintendent of bridge and structural shops, Shiffler Bridge Co., and American Bridge Co.; 12 years superintendent of plate and angle shops of New York Shipbuilding Co.

J. C. Sullivan, assistant superintendent shops: Shipyard experience, Nixon's, Elizabeth, N. J., 1895–1897; Green's, Bridgeport, Conn., 1897–1898; Cramp's Philadelphia, Pa., 1898, with Capt. Sigsbee fitting out steamship *St. Paul*; United States Navy, warrant machinist, 1898–1902; passed examination for ensign commission (Spanish-American War; Broklyn Navy Yard, 1903–1905; graduate Worcester Technical School, class 1908, mechanical.

P. J. Conboy, superintendent machine shop: Employed by Henry G. Morse, president of the New York Shipbuilding Co., June 1, 1899, as chief designer and contractor of special and standard ship machinery. In 1901 to 1902 in April, had charge of shop upkeep as machine shop boiler plate and angle drop forge shipway and copper pipe shops. 1881–1885, high school (St. Xavier College, 4 and 5 academic and Hamilton Mechanics Institute, classes 85 to 88).

J. C. McCullen, superintendent smith shop: With the Harlan Hollingsworth, 7 years; with the New York Shipbuilding Corporation, 17 years; Wilmington High School.

W. F. Goff, shops office manager: About 11 years with New York Shipbuilding Co., Camden, N. J., as timekeeper, chief clerk, office manager of shops, assistant to superintendent. No college attended.

| | Total number on the work. | Number who have had previous experience. |
|---|---|---|
| General foremen | 10 | 7 |
| Foremen | 28 | 14 |
| Leaders | 11 | 7 |
| Total | 49 | 28 |

DEPARTMENT OF STANDARDS AND INSPECTION.

W. B. Ferguson, assistant vice president, in charge: United States Naval Academy, graduated 1900. Massachusetts Institute of Technology, post-graduate course in naval architecture and marine engineering, 1901–1904. Asssitant naval constructor United States Navy and naval constructor, 1904 and 1905 when resigned and became production engineer at Remington Arms Co., Bridgeport, Conn.; two years there. 1904–1908, at New York Navy Yard as assistant and in charge of hull construction and repairs in all classes of naval vessels and auxiliaries; had direct charge of building collier *Vestal* and several small steel and wood vessels. 1908–1910, assistant superintendent construction at Fore River Shipbuilding Co.; superintending construction of battleships, cruisers, destroyers, submarines. 1910–1912, at Boston Navy Yard; assistant in charge of all hull work. 1912–1914, construction officer at Navy Yard, Charleston, S. C.; in charge of all hull work—repairing and constructing various kinds of vessels. 1917, president and general manager Baylis Shipyard, Port Jefferson, Long Island, until August, 1918, when went, at Admiral Capp's request as his assistant and assistant to Admiral Bowles on Shipping Board. June, 1918 came with A. I. S. C.

J. MacDowell, chief inspector: I served my apprenticeship to shipbuilding at fitting, riveting, calking, and mold-loft work in Peter Denny & Son Shipbuilding Yard, Dumbarton, Scotland. Commenced working as a mechanic at

ship construction in John Roach yard, Chester, Pa., in November, 1874. Took charge as general foreman in the spring of 1876; remaining in charge continuous for 20 consecutive years, namely, until 1896. Was then engaged by W. I. Babcock, manager of shipbuilding company, Chicago, Ill., as superintendent, which position I held until 1898. Mr. Morse, who was then president of the Harlan & Hollingsworth yard, Wilmington, Del., engaged me as superintendent of said yard under him, which position I held until 1911, leaving them of my own accord to take up inspection work; Mr. W. G. Coxe, now district officer for Emergency Fleet Corporation, being president several years prior to my leaving. Since the spring of 1911, until the fall of 1917, I have built and inspected several vessels for the Texas Oil Co., under the guidance of Mr. George B. Drake, who is at present general manager; also tugs and car floats for the Delaware & Lackawanna people; several tankers for the Gulf Refining Co.; and numerous tankers and general repair work for the Standard Oil Co. of New York. I may say that my inspection work for the above concerns necessitated me being at times in mostly all yards on the Delaware; also Skinner Ship Yard, Baltimore, Md.; Sparrows Point, Md.; Newport News Shipbuilding & Drydock Co., Newport News, Va.; Erie Basin, Brooklyn, N. Y.; the principal and last one being the New York Shipbuilding Corporation, Camden, N. J. When, in the fall of 1917, all vessels were requisitioned and taken over by the Shipping Board, myself at the same time being also engaged by them, remaining with them as chief inspector in charge until July 19, 1918. Referring to my education, I have what is termed in Europe as a national-school education, which is equivalent to a high-school education in this country, having also at various times during my apprenticeship attended night school on technical matters pertaining to my trade.

W. E. John, supervising inspector: Franklin Institute naval-architecture course, class 1911. With M. C. Furstenan, naval architect, 308 Walnut Street, Philadelphia, two and one-half years as apprentice and draftsman. With J. Murray Watts, naval architect, Philadelphia, two and one-half years as chief draftsman. With Southwark Foundry & Machine Co., Philadelphia, two years as production manager. Lieutenant (junior grade), United States Navy, detailed on construction work, April 5 to November 1, 1917. With U. S. S. B. E. F. C. from November 1, 1917, to July 31, 1918, as naval architect.

E. C. Rockwell, superintendent: Graduate of United States Naval Academy, Annapolis, Md., 1915. Kenyon College, Cambier, Ohio (two years scientific course), 1913. Ensign United States Navy, in 1915, for four months after graduation. Resigned from service October, 1915, on failure to pass physical examination. With Fore River Shipbuilding Corporation, Quincy, Mass., from October, 1915, to February, 1917, during which time held the following positions: General superintendent's office, four months on material chasing, seven months on finishing up and delivering destroyers; engine drafting room, one month as draftsman; plate and angle shop, five months, working as a mechanic, studying piecework. With Great Lakes Engineering Works, Ecourse and Ashtabula plants, from February, 1917, to July 1, 1918, during which time held the following positions: Assistant supervisor piecework and efficiency engineer, February, 1917, to January, 1, 1918; assistant superintendent and efficiency engineer of Ashtabula plant, January 1, 1918, until July 1, 1918, when I joined the A. I. S. C.

TRAINING SCHOOL.

P. B. Gibson, assistant superintendent: Forrest & Sons (Ltd.), shipbuilders and engineers, London, England. I was with this company for three years, nine months as apprentice engineer; went through all the departmets; worked on engines, auxiliary machinery, and boilers for ships of all classes; the last year was spent on outside work installing machinery, on board ship, dry dock and repair work; also running dock and sea-trial trips. Hammersmith Iron Works, London, England. This company builds centrifugal pumps and auxiliary machinery for marine work; was with them over a year. Southwestern Steamship Co. (Ltd.), San Francisco, Cal. I was president and general manager of this company for nearly two years. We operated a freight, passenger, and United States mail service from San Francisco to Mazatlan, Guyman, and other Mexican ports; service was discontinued because of the war and bad condition in Mexico. I was educated at Eastward Ho College, Felixstowe, England, also South Kensington College of Engineers, London, England.

E. C. Miller, supervisor of training: 1910–11, holder-on, riveter, leader, navy yard, Mare Island, Vallejo, Cal.; construction U. S. S. *Jupiter*. 1912–1915, United States Navy, seaman, ship-store yeoman, ship's writer, captain's yeoman, flag yeoman, pay department, navigator's yeoman. 1918, graduate of United States Instructors Training School, Newport News, Va.

Ernest Ivison, supervision in training school: 1901–2, New York Shipbuilding Co., employed as machinist on centrifugal pumps under H. Kennedy. 1899, employed as floor hand at Cramps & Co., under John Day. 1896–97, employed as oiler on steamship *Currie*, also steamship *A. D. Thompson*, out of Cleveland, on Great Lakes. 1918, graduated from United States Instructors' Center, Newport News, Va.

Robert G. Fiedler, supervisor of instructors: Learned my trade with the Neafie & Levy Ship & Engine Building Co. Worked for them between six and seven years. Put the last two of the years out in the yard as outside machinist. Put one year in with Williamson & Sons erecting hoisting and steering engines. About six months in Cramps dry dock.

About one year in Midvale steel works making bits for boring out guns and erecting the guns. The rest of my time I have put in on engine repairs, all together about 19 years. Went as far as the twelfth grade in public school.

P. J. McCann, supervisor: 1894, three years Cramps, heater and holder on; 1896, one year Nafey & Levy, riveter; 1897, one and one-half years Harlan & Hollingsworth, Wilmington, riveter; three years Digaulge yard, Camden, N. J., riveter; six years New York shipyard as riveter, caiker, and test man chipper calker; one year in navy yard, Philadelphia; six months in Brooklyn Navy Yard; five years' sea service at sea as team quartermaster.

H. F. Nelson, assistant to head of training department on ways: Two years apprenticeship machinist, Nafey & Levy, Philadelphia; one year marine machinist, Newport News, shipyard, Va.; two years oiling, firing on board steamships; two years third assistant engineer at sea; one year second assistant engineer at sea; one year first assistant engineer at sea; two years chief engineer; one year experience as inspecting boilers and machinery, State of Pennsylvania. During marine engineering career, had the experience of installing machinery on four ships and operating same after completion of work. Schools attended, Wilmington Conference Academy, Dover, Del., 1909; Wilmington Business College, Wilmington, Del., 1912; also Dartmouth College, Hanover, N. H.

Total instructors on the work, 144.

Number who had previous shipbuilding experience, 65.

PRODUCTION DEPARTMENT.

Twenty-four men in this department have had ship construction experience. The total number of men in the department is 251, which includes clerks and accountants. No complete study of the relative proportion of men segregated by duties has as yet been attempted.

DEPARTMENT OF MACHINERY FABRICATION.

C. C. Thomas, managing machinery fabrication: Cornell University, 1895, mechanical engineering. Globe Iron Works Co., shipbuilders, Cleveland, Ohio, 1895–1899; draftsman, assistant engineer, chief engineer, 1897–1899. Maryland Steel Co., marine department, chief draftsman, 1899–1901. Marine work, New York City, 1901–1903; designed pumps and piping systems and erected all machinery on steam yacht *Arrow*, 4,000 horsepower. Marine work, Moran Bros., Seattle, Wash., 1903–1904; designed piping and arrangement of machinery on battleship *Nebraska* and various Sound steamers. Designed all machinery for two seagoing suction dredges, *Atlantic* and *Pacific*. Professor marine engineering, Cornell University, Ithaca, N. Y., 1904–1908. Professor mechanical engineer, University of Wisconsin, 1908–1913. Professor mechanical engineering, Johns-Hopkins University, 1913–1917. Consulting work on marine and mechanical lines, 1904–1917. May to October, 1901, sailed as assistant in engine room steamship *Deutchland* for Standard Oil Co. Spent 16 months in Europe inspecting principal shipyards and engineering establishments on the Continent and in England, and as consulting engineer for Cutler-Hammer Manufacturing Co. on European work, 1911–1912. Associated with Cutler-Hammer Manufacturing Co., Milwaukee, Wis., as inventor and consulting engineer of Thomas Meter Department, 1908–1918.

J. A. Nelson, assistant manager machinery fabrication: Graduate of Sheffield Scientific School of Yale University, class of 1888; civil engineering course. 1891–1894—Draftsman and calculator, Norfolk Navy Yard, department of construction and repair; engaged in building U. S. ships *Texas*, *Raleigh*, *Amphitrite*, and in general repair work, fitting out work, etc., on other Navy ships. 1894–1897—Draftsman and technical assistant in Bureau of Construction, Navy Department, Washington; engaged on designs of battleships *Kearsarge* and *Kentucky*, several types torpedo boats and destroyers, and preliminary designs for model testing tanks. 1897 to 1898—Herreshoff Manufacturing Co., Bristol, R. I., representing Navy Department on construction torpedo boats *Morris*, *Talbot*, and *Gwin*. 1898–1903—General superintendent William R. Trigg Co., Richmond, Va.; while there had charge of building three torpedo boats, two destroyers, two revenue cutters, two river passenger ships, one cruiser, one Army suction dredge, one Standard Oil tanker, and five tugs. 1903–4—Assistant superintendent Fore River Shipbuilding Corporation, Quincy, Mass., in charge of battleships *Rhode Island*, *New Jersey*, and *Vermont*, and later in charge of technical department. 1904—With American Bridge Co. at Ambridge, Pa., in charge of and organizing, designing, and technical departments for building barges and river steamers. 1904–1916—Out of shipbuilding, engaged in general manufacturing, general contracting and steel pipe manufacturing, first with Power & Mining Co., at Cudahy, Wis., as superintendent and later as vice president and general manager of various companies subsidiary to the T. A. Gillespie Co. of New York. 1916–17—Eastern representative of the Union Iron Works Co., of San Francisco. 1917—present time—American International Shipbuilding Corporation.

H. Sinclair, engineer steam machinery: Cornell University, mechanical engineering, 1910; six years Turbine Equipment Co., New York City; selling and installing Delaval turbines and auxiliaries for land and marine work. Last two years (1915–1917) devoted in a large measure to marine work. Held position as secretary of this comapny. 1917–18 (1 year)—Chief inspector of propelling machinery and auxiliaries for Chester & Merchants Shipbuilding Corporation of Chester and Bristol. Work included inspection at manufacturers' plants, as well as at shipyards, and making up all reports on dock trials, trial trips, etc.

W. W. Mullins: October, 1908, to November, 1917, with United Fruit Co., Costa Rica. Four years in position of mechanical engineer and five years in position of superintendent of motive power. In both these positions supervised port repairs to steamships of the United Fruit Co. steamship lines, also to all others at port of Limon, Costa Rica. These averaged from six to seven a week and varied in size from 3,500 to 10,000 dead-weight tons. This experience consisted principally of repairs to boilers, engines, auxiliaries, and hull, for which shop facilities and experienced mechanics were required. Also had experience applying equipment to burn oil, unloading oil tank steamers, general cargoes, and improving piers to protect hulls while alongside in open port. References can be obtained from Mr. M. C. Keith, first vice president United Fruit Co., 17 Battery Place, New York, or from Mr. S. G. Schermerhorn, president River Plate Commercial Co., 50 Broad Street, New York; Mr. J. Strachan and Capt. L. H. Porter, who are with the A. I. S. C., also knows of this service. University of Toronto, 1903, course mechanical engineering.

C. D. Delaney, assistant equipment engineer: Mechanical engineering, Drexel Institute, Philadelphia, Pa. October, 1909, to June, 1911. Engine drawing room of New York Ship Corporation, July, 1911, to September 7, 1913. Apprentice machinist New York Ship Corporation September 8, 1913, to October 6, 1916. Machinist New York Ship Corporation October 6, 1916, to October 30, 1916. Steamship *William O'Brien* (machinist), East Coast Transportation Co. October 30, 1916, to December 14, 1916. Machinist New York Ship Corporation December 14, 1916, to March 19, 1917. Steamship *Gulf Maid* March to June, 1917, machinist, Gulf Refining Co. Steamship *Edward L. Dohany, jr.* (Jr. Eng.), Petroleum Transportation Co., June, 1917, to October, 1917. Steamship *Harold Walker* (second assistant engineer), October, 1917, to December 28, 1917. January 2 until the present time with the American International Shipbuilding Corporation as assistant equipment engineer, machinery fabrication department.

J. S. Myers, assistant engineer: Three years with New York Shipbuilding Corporation when plant first built, in mechanical engineering department as draftsman and designer. Five years as designer and later chief draftsman on

line of ship auxiliary machinery with Williamson Bros. Co. (now the American Engineering Co.). Other experience was not on ship work.

D. E. Lowell, assistant equipment engineer: University of Michigan, class of 1905, mechanical engineering. Only experience in shipbuilding was in summer of 1903 at Bath Iron Works, Bath, Me. My work there was on engine erection floor, assembling engines for U. S. S. *Georgia*.

DEPARTMENT OF DESIGN.

D. J. Brown, hull structural engineer: Five years apprenticeship with Row. McLachlan, shipbuilders and marine engineers, Clyde, Scotland; also five years as a draftsman with the above company. During tht time I had a general all-around experience in the drawing room, such as the development of new designs, estimating, drawing, and supervising all classes of plans for merchant and naval vessels. While serving my apprenticeship I attended the Glagow Technical School and took a course in naval architecture, including both elementary and advanced stages, and also had yard experience in mold loft, ship carpentry, and ship fitting.

In addition to above, I was employed one year as a first-class ship draftsman with the Union Iron Works, San Francisco, Cal., on naval and merchant vessels; 2 years as a first-class ship draftsman with the Fore River Shipbuilding Corporation, Quincy, Mass., on naval vessels; 9 years with the Bethlehem Shipbuilding Corporation (Ltd.), Sparrows Point Plant, Sparrows Point, Md.; 7 years of which I was leading draftman in charge of all hull work, and the remaining 2 years as chief hull draftsman. While with the Bethlehem Shipbuilding Corporation (Ltd.), I had considerable experience with the Isherwood system of ship construction, and my complete experience has practically covered all classes of marine drawing-room work on all types of ships.

John Sanders, jr., assistant fabrication engineer: Three months Crescent Shipyard, Elizabethport, N. J. In yard on installation of piping on topedo boats and submaries. Three months Bath Iron Works, Bath, Me., in designing office and in yard on hull construction. Two and one-half years as inspector of workmanship in the yard in ship construction, draft and scientific department, New York Shipbuilding Co., Camden, N. J. One and one-half years in scientific department Cramps Ship & Engine Building Co., Philadelphia, Pa. Graduated 1903, Webb Academy, New York City. Naval architecture and marine engineering.

C. A. Schafer, nautical architect: Three years University of Oregon, mechanical engineering. B. Sc. in naval architecture, Massachusetts Institute of Technology, class 1911. Three years Joseph Supple (shipbuilder), drafing. One year Electric Boat Co., scientific calculator and designer (submarine). One year New York Shipbuilding Corporation, assistant to general foreman. Four years Cramp Ship & Engine Building Co., calculator and designer. Two years Sun Shipbuilding Co., assistant to naval architect, charge scientific department.

J. C. Baldwin, assistant to fabricating engineer: Six years, 1912 to 1918, with Heffernan Engine Works, Heffernan Dry Dock Co., Seattle, Wash. Had experience in the various departments as follows: Secretary to the president, cost accountant, purchasing agent for three years, which includes distribution and expediting of material. Also had considerable experience assisting chief engineer.

William H. McDowell, consultant: Delaware River Shipbuilding Co., Chester, Pa., from June, 1896, to December, 1897, outside machine department and boiler shop; also worked in outfitters' department.

South Chicago Shipbuilding Co., South Chicago, Ill., from January, 1897, to June, 1898, pattern-shop apprentice.

Harlan & Hollingsworth Co., Wilmington, Del., from September, 1900, to January, 1901, under instructions in drafting.

Neafie & Levy Ship & Engine Building Co., Philadelphia, Pa., from February, 1901, to January, 1904, draftsman.

Neafie & Levy Ship & Engineering Building Co., Philadelphia, Pa., from February, 1904, to May, 1907, assistant superintendent in yard.

Sun Oil Co., Marcus Hook, Pa., from June, 1907, to September, 1907, superintendent building constructions.

Maryland Steel Co., Sparrows Point, Md., from October, 1907, to January, 1915, draftsman on all kinds of hull details and structural work; also lines and calculations.

Bethlehem Steel Co., Sparrows Point, Md., from February, 1915, to February, 1917, assistant plant engineer, supervising rearrangement of yard, building of

slips, erection of buildings, modifications of machinery, supervising building of dry docks, wharves, and piers.

Bethlehem Steel Co., Sparrows Point, Md., from March, 1917, to December, 1917, plant engineer, promotion from position of assistant plant engineer, as covered in the preceding paragraph.

Attended private night school, naval architect course, under Mr. Herbert, Wilmington, Del.

Percy Nicholson, equipment engineer: Attended grammar school and took marine engineering course with the International Correspondence School.

From October, 1889, to May, 1893, was with the F. W. Wheeler & Co., ship and marine engine builders, Bay City, Mich., employed in shipyard as rivet heater, bolter-up, fitter, and in mold loft, also have worked on all classes of wooden ships.

From May, 1893, to July, 1896, was employed two years as hull draftsman and one year as engine draftsman with the above shipbuilding concern.

From July, 1896, to December, 1896, partnership in engineering and patent office business.

From December, 1896, to April, 1897, marine engine draftsman with F. W. Wheeler & Co.

From September, 1897, to December, 1897, marine engine draftsman at Nixon's shipyard, Elizabeth, N. J.

From December, 1897, to July, 1898, chief engine draftsman at F. W. Wheeler & Co.

From July, 1898, to November, 1898, marine engine draftsman at Neafie & Levy, ship and marine engine builders, Philadelphia, Pa.

From November, 1898, to November, 1903, at Harlan & Hollingsworth Corporation, Wilmington, Del., two years as marine engine draftsman and three years as assistant chief engine draftsman.

From November, 1903, to December, 1904, at dock department, Maryland Steel Co., Sparrows Point, Md., as hull and engine draftsman on *Dewey* dry dock.

From December, 1904, to July, 1910, at Harlan & Hollingsworth Corporation as assistant chief engineer.

From March, 1912, to December, 1917, at Bethlehem Shipbuilding Corporation (Ltd.), Sparrows Point plant, Sparrows Point, Md., as marine engine draftsman, special assistant to chief engineer on scientific work and labor costs, and chief of engine scientific and estimating department.

John A. Raidabaugh, assistant equipment engineer: 1901, 1902, 1903, 1904, summer vacations spent in various shops, drawing-room, yard, etc., at Maryland Steel Co., Sparrows Point, Md., marine department.

June, 1905, to September, 1905, installing machinery, Maryland Steel Co.

September, 1908, to October, 1915, drawing-room, Maryland Steel Co., marine department. About three months detailing on machinery plans. After that I acted as leading man or squad chief on engine design and pipe plans. Also handled nearly all special work, such as propeller and boiler design, special calculations, and at times did estimating. Also, spent a great deal of time on trial trips and trips on ships in operation, making tests and reports. Also worked on plant repairs and additions.

October, 1905, to October, 1916, machinery estimator at Maryland Steel Co., marine department. This is now the Bethlehem Steel Co.

November, 1917, to present: A. I. S. C., first as machinery engineer and then as assistant equipment engineer.

NOTE.—The interval between 1905 and 1908 was spent as follows: One year in the mechanical department of the M. S. Co., two years erecting and operating steam turbines for the Allis-Chalmers Co.

The interval from October, 1916, to November, 1917, when I entered the employ of the A. I. S. C., was spent in business for myself. This business was architecture and engineering.

Cornell University, 1905, mechanical engineering (specialized in marine engineering).

George Jenkins, special assistant equipment engineer: 1900 to 1906, apprentice and draftsman in design, estimating and calculations on hull and hull fittings. About 18 months of this time was spent in the yard as ship fitter, in mold loft, and outfitting.

1906–7, draftsman on submarine design and calculations at Lake Torpedo Boat Co., Newport News, Va.

1907, 1912, squad chief in charge of hull and hull fittings.

1912–13, assistant to superintendent of construction, inspecting and charge of fitting vessels with their outfits.

1913, 1916, chief clerk in charge of all ship cost accounting.

1916–17, assistant to superintendent of construction, fitting vessels with their equipment and looking after ships' repair work.

November, 1917, to present, with A. I. S. C. as hull fittings' engineer and special assistant to equipment engineer.

With exception of Lake Torpedo Boat and A. I. S. C., all my experience has been with the Maryland Steel Co., Sparrows Point shipyard.

Maryland Institute, school of art and design, graduated.

Public schools, eighth grade.

Private tutor. several years in ship cnostruction.

H. S. Hopo, assistant to equipment engineer: Four years' course of instruction in ship and engine design, United States Government.

One and one-half years as draftsman and inspector, Bath Iron Works, Bath. Me.

Two and one-half years as draftsman and inspector, Fore River Shipbuilding Co., Quincy, Mass.

One year in business for myself as marine engineer and naval architect, getting out design of tug boat and machinery for Chesapeake & Ohio Railway.

Five years as draftsman in charge of engine and propeller design, etc., at Newport News Shipbuilding and Dry Dock Co.

Three years in business manufacturing paint, specializing in marine compositions, and in several cases acted as owner's representative in making repairs to ship.

H. B. Hasenbals, assistant to equipment engineer: 1911 to 1916, Ellicott Machine Corporation, Baltimore, Md., squad chief drafting room. 1916–1917. Union Shipbuilding Corporation, Box 475, Baltimore, Md., chief engine draftsman.

Louis B. Humphrys, electrical engineer: Finsbury Technical College, London, England, 1899, electrical and mechanical engineering.

Sunderland Forge & Engine Co., England. engine department, engineer. Installation and equipment of substations for electric power in shipyards on the Wear, three and one-quarter years.

Sunderland Forge & Engine Co., England. engine department, engineer. ship's lighting and power, and design of special motors for winches and fans. six months.

As a hobby took up study of naval architecture during three winters. D. W. & R. S. Dickie, San Francisco, Cal., naval architects, draftsman, design of 60-foot gas tug and bay ferry boat; also preliminary designs on various small cargo boats, 1914, seven months, and 1915, three months.

F. H. Evers, surveyor, British Corporation, San Francisco, Cal., assisted in survey of S. S. *Marama*, after being ashore off Pacific coast, and some inspection. Also superintended change of cargo boat to carry some passengers.

Edward G. Jay, jr., hull fittings engineer: Central Manual Training High School, Philadelphia, class of 1898. Special courses mathematics, engineering. and advertising during past 20 years, when needed.

Member American Society Mechanical Engineers.

Installation and design of feed-water heaters and other steam economizing apparatus on dredges of American Dredging Co. during 1912–13.

Actual work at pipe fitting and general ship fitting on American and British cargo steamers with John Baizeley Iron Works and other ship fitters along Delaware River, covering period of about two years prior to association with American International Shipbuilding Corporation.

Familiar with marine laws, pilot rules, steamboat inspection, piloting, because of active interest in yachting past 10 years.

Harry G. Munro, assistant hull-fitting engineer.

Norfolk Navy Yard, one year as hull draftsman and checker aboard ship.

Newport News shipyard, three years hull drafting and work on yard.

Fore River shipyard, three years hull drafting, yard work, and checking aboard ship.

Electric Boat Co., one year and three months hull draftsman, checker, and squad chief.

Groton Iron Works, assistant to naval architect about six months. Supervising drawing office and yard work on rebuild of steel cargo vessels.

Lake Torpedo Co., eight months as squad chief in hull drawing office.

Connecticut State Trade School, principal of shipbuilding department, four months. Instructing in hull drafting, ship fitting, and mold-loft work.

Technical training, two terms at Lowell Institute, Boston, Mass, structural engineering. Two years in private school of naval architecture, Norfolk, Va.

James B. Baker, jr., chief draftsman, hull fittings: Fourteen years with the New York Shipbuilding Corporation in the hull-drafting room, last three years in charge of work. Mathematics, Temple College. Strength of materials, Franklin Institute. Naval architecture, Franklin Institute.

John J. Palmer, assistant chief draftsman: Graduated Virginia Polytechnic Institute, mechanical engineer.

Two years Wm. H. Trigg Co.

Six years Maryland Steel Co., charge man, and in charge of the scientific department.

One year Newport News Dry Dock & Shipbuilding Co., charge man.

Six months National Shipbuilding Co., naval architect.

W. J. Cotterell, machinery engineer: Graduate of Trinity College, Dublin, mechanical engineering.

Apprenticeship in Marine Engine Works, Birmingham, England, marine engineer two and a half years, taking charge of watch.

Chief machinist, United States Navy, battleship *Massachusetts*.

With Holland Submarine Boat Co., designing and superintending machinery installation; also with Speddens Shipyard, Crescent Shipyard, etc.

Chief engineer of steamship *Freidrich der Grosse* from date of seizure until turned over to United States Navy.

Instructor in engine-room and fire-room practice, United States Shipping Board, on steamship *John Weaver, Philadelphia*.

Charge of machinery estimating department, Merchants Shipbuilding Co., Finance Building, Philadelphia.

A. Frankish, assistant to machinery engineer: Previous to 1898 served my apprenticeship to locomotive engineering and since was employed in stationary-engine work, boilers, and cranes.

In shipbuilding work I was employed in the drafting room of Messrs. Harlan & Hollingsworth Co., Wilmington, from 1898 to 1905; also for the same firm at Elizabethport during 1905 and 1906.

During the eight years with the Harlan & Hollingsworth Co. I was chief boiler draftsman and designed most of the boilers during that time. In addition I had other marine work, including taking dimensions and making drawings for repairs, etc. While at Elizabethport I had charge of the drafting work to complete the machinery of the Mexican gunboats.

In the matter of education, have had a fairly good English education, finishing in the evening classes of one of the English colleges. In 1880 I obtained the English engineering scholarship known as the "Whitworth scholarship."

C. W. Griffenberg, chief draftsman: October, 1891, to September, 1895, Harlan & Hollingsworth Co., machine shop; September, 1895, to November, 1896, Harlan & Hollingsworth, hull drafting room; November, 1896, to January, 1906, Harlan & Hollingsworth, engine drafting room; January, 1906, to November, 1917, New York Shipbuilding Co., engine drafting room; pipe-arrangement work; four years of this time as leading piping draftsman.

Russell E. Stabler, assistant chief machinery draftsman:

October, 1905, October, 1909, apprenticeship, Maryland Steel Co., marine department, drawing room.

October, 1909, to January, 1918, Maryland Bethlehem Steel Co., as marine engine draftsman, general drawing-room work, engine, boiler, and piping layout; majority of last four of five years in charge of machinery and piping arrangements.

January, 1918, to present date, American International Shipbuilding Corporation, as squad chief and assistant chief machinery draftsman, equipment division, machinery fabrication department.

O. H. Nieland, squad chief, hull structural department: New York Shipbuilding Corporation, September, 1903, to September, 1906, three years, draftsman; employer, M. C. Pierce, chief draftsman, New York Shipbuilding Co.

Technical School, International Correspondence Schools Course, mechanical drafting, structural engineering.

John Walter, squad chief, fabricating engineering department: One year machine-shop practice in Norway; two years as draftsman on engines, boilers, and boiler and hull fittings, Lalenaag Machine & Shipbuilding Co., Bergen, Norway; three years in charge of steel barges, wharf boats, and floating dry docks with the American Bridge Co., Pittsburgh, Pa.

Graduate of the Technical School of Trondhjem, Norway, class 1889, mechanical engineering; post-graduate course at the Technical High School, Dresden, Saxony, 1892, bridge and structural engineering.

Lawrence D. Armstrong, squad chief, hull structural department: Wm. Cramp & Sons, 1904 to 1910 (6 years); New York Shipbuilding Corporation, 1910 to 1914 (4 years); Electric Boat Co., 1914 to 1915, (1 year) checker; Penn Shipbuilding Co., 1915 to 1916; Wm. Cramp & Sons, 1916 to 1917; American International Shipbuilding Corporation, 1917 to 1918.

Grammar School, graduate N. E. Manual Training School (evening), three years; Franklin Institute (evening), two years; correspondence (I. C. S.), 50 per cent completed.

A. W. Drew, squad chief, fabricating engineering department: I am a graduate of the University of Maine, mechanical course, class of 1890.

I worked 4 years in the hull drafting room at Bath Iron Works, 12 years at Newport News Shipbuilding & Dry Dock Co., 7 years at New York Shipbuilding Co., and 4 years at Philadelphia Navy Yard.

At Newport News Shipbuilding & Dry Dock Co. I was leading draftsman on all classes of ship construction, including structural work, ventilation, sanitary work, and pumping and drainage.

At New York Shipbuilding Co. I was leading draftsman on battleships *Michigan* and *Utah*, also of several merchant ships.

At Philadelphia Navy Yard I was leading craftsman on ventilation, plumbing, scuffers, and other work.

A great deal of the above time, especially at Newport News and Philadelphia Navy Yard, was spent in the yard and on the ships overseeing the erection and installation of the work.

R. C. Corson, squad chief, fabricating engineering department: New York Shipbuilding Co., from September, 1906, to March, 1908, and from September, 1909, to June 1911, hull department, drawing room, and checking of work on ship.

New London Ship & Engine Co., from June, 1911, to January, 1912, and from May, 1915, to August, 1915, hull department, drawing-room work.

Newport News Ship & Drydock Co., from January, 1912, to March, 1912, and from January, 1915, to May, 1915, hull department, drafting and designing.

Harlan-Hollingsworth Corporation, from March, 1912, to August, 1912, hull department, drafting and designing.

Edward W. Pond, squad chief, hull-fitting department: Three years with William R. Trigg Co., Richmond, Va., as draftsman under P. A. Talbot, detailing and design.

Two years with Petersburg Iron Co., Petersburg, Va., as charge man under Col. C. P. Burgwin, designing.

One year with United States War Department at Richmond, Va., as draftsman under Capt. R. M. Patterson, structural detailing.

Six years with Newport News Shipbuilding Co., Virginia, as draftsman under A. W. Jenkins, general ship work.

One year with United States navy yard, Philadelphia, Pa., as draftsman, design and structural work, under P. A. Talbot and L. C. Ripley.

I took a course in marine engineering and construction with the Armour Institute of Technology, class of 1902; also doing home work with Hohn's textbooks and other standard reference books, Atwood, Simpson, Therle, etc.

James E. White, squad chief, ship-drafting department: From 1892 to 1899 apprentice to Summers & Paynes (Ltd.), yacht and ship builders, Southampton, England, ship joiner and shipwright.

From 1900 to 1906 worked as ship joiner for Union Steamship Co., Southampton, England; Royal Mail Steamship Co., Southampton, England; Waring & Gellow Co., London, England.

In business for myself 1907 to 1913, Montclair, N. J.

Two years with Hawkins Shipyard, City Island, N. Y.

Six months foreman ship joiner for Kyle & Purdy, shipbuilders, City Island N. Y.

Three months loftsman for Terry Shipbuilding Corporation, Savannah, Ga.

Six months draftsman for Merrill Stevens Shipbuilding Corporation, Jacksonville, Fla.

Educated Taunton Trade School, Southampton, England; Hartley College, Southampton, England (navigation and naval architecture); Northern Polytechnic, London, England (mathematics and drawing); Mechanics Institute, New York (architectural drawing).

Fred Buch, squad chief, hull-fitting department: 1899, Wm. Cramp & Sons Ship & Engine Building Co., pipe fitter's helper; 1900, tracer and detailer; 1901, piping draftsman. 1902–3, Fore River Shipbuilding Co., hull draftsman. 1904–5, Wm. Cramp & Sons Ship and Engine Building Co., piping draftsman. 1906, Fore River Shipbuilding Co., hull draftsman. 1908–9, Newport News Ship and Drydock Co., piping draftsman.

Technical training: I. C. S. mechanical course; private course in structural engineering; private course in reinforced concrete designing.

Herbert C. Smith, squad chief, hull-fitting department: One year at ship fitting; four years at drafting, hull department; ten years at general-engineering work with D'Olin Engineering Co. With this company at times as a draftsman. I worked on the power plant of the Puget Sound Navy Yard. Changed to the Power Plant of League Island Navy Yard. Fuel-oil piping and pump for the United States station at Guantanamo, Cuba. Pumps for New York Ship Co. and Charlestown Navy Yard. At Drexel Institute have taken the following courses: Strength of materials, applied electricity, steam engineering, heating and ventilating; and at Franklin Institute, a part of a course of naval architecture.

Christian M. Ilvain, squad chief, fabric-engineering department: Five years shop and shipyard experience in Norway; three years as marine engineer at sea. Four and a half years as draftsman, of which about two years in America by Pusey & Jones Co., Wilmington, Del., and New York Shipbuilding Corporation, Camden, N. J. Mortens Technical College, with ship construction in Norway.

J. C. Weber, hull-fitting department: Have had some experience at sea as navigating and engine-room apprentice, as well as other positions in this line. Worked on marine auxiliaries as designer for the American Engineering Co. for about two years. All other positions have been mechanical engineering and construction work along different lines. Drexel Institute of Mechanical Engineering, 1908, and course in structural engineering at the same school.

John F. McAvoy, master checker: Engine draftsman, with Columbia Iron Works & Dry Dock Co., Baltimore, Md.; three different terms about two years each, during the last as chief draftsman.

Engine draftsman with the Sparrows Point Co., Baltimore, Md.,; three different terms of about three and one-half years each.

Was also employed at the Harlan & Hollingsworth Co., Wilmington, Del.; the Newport News & Dry Dock Co., Newport News, Va.; the Baltimore United Oil Co. (now the Standard); John C. Fredelich & Co., Baltimore, Md.; and Bartlett-Hayward Co., Baltimore, Md.

Entered the business as apprentice with Wendel Bellman, of Baltimore; term, three years.

Graduated from Calvert Hall College, Baltimore, 1879.

Was also at Rock Hill College, Ellicott City, Md., for one term.

Francis J. Ruth, supervisor of checking and marking: Baltimore City College, academic course, 1913 class; Maryland Institute night school, mechanical course, 1912 class.

Three years one month with Maryland Steel Co., Sparrows Point, Md.; machinist. One year two months with Ellicott Machine Corporation, Baltimore, Md.; draftsman. Seven months with Bethlehem Steel Co., Sparrows Point, Md.; draftsman. Eleven months with Lake Torpedo Boat Co., Bridgeport, Conn.; machinist.

C. Laurence Kaspar, squad chief, equipment: Baltimore Polytechnic Institute, 1913, mechanical.

February, 1913, to September, 1914, Newport News S. B. & D. D. Co., eleven months engine drafting; eight months cost estimating, computation, scientific work, trial trips, etc.

February, 1915, to May, 1915, Spedden Shipbuilding Co., Baltimore, Md., pipe-arrangement drafting.

June, 1915, to February, 1916, Newport News S. B. & D. D. Co., cost estimating, computation, scientific work, trial trips, etc.

February, 1916, to May, 1917, Bethlehem Steel Co., Maryland Shipbuilding Plant, Sparrows Point, Md., estimating, computation, scientific work, trial trips.

May, 1917, to January, 1918, Baltimore D. D. & S. B. Co., piping-arrangement drafting.

George H. Myers, squad chief, equipment: William Cramp & Sons Ship and Engine Building Co., 3 years in sales and order deparment, 1 year as apprentice in machine shop.

New York Shipbuilding Corporation, Camden, N. J., 11 years in engine drafting room on marine piping, etc.

Attended Franklin Institute, Philadelphia, night class in drafting, etc.

Drexel Institute, Philadelphia, night class in drafting, etc.

Henry McClelland, squad chief, equipment: Attended technical evening classes during apprenticeship, 1896–1901. Apprentice in shops and drawing office, D. Ralls & Sons, engineers and ship repairers, Liverpool, England.

1901–2. Journeyman, ditto.

1902 (January to December). Draftsman, Fawcett Preston & Co., engineers, Liverpool.

January, 1903, to December, 1904. Draftsman, Cammell, Laird & Co., engineers and shipbuilders, Birkenhead.

December, 1904, to March, 1905. Draftsman, Brown Bros., Edinburg.

April, 1905, to December, 1906. Third and second assistant engineer, S. S. *Baroda*, Louden and Co.

January, 1907, to December, 1907. Second assistant engineer, S. S. *Ramazan*, H. Fernie & Son.

December, 1907, to July, 1908. Studying for examination. Obtained extra first-class engineer's certificate, Board of Trade Examination.

August, 1908, to December, 1909. First assistant engineer, S. S. *Baltazan*, H. Fernie & Son; S. S. *Martazan*, H. Fernie & Son.

January, 1910, to December, 1911. First assistant engineer, S. S. *Victoria de Larrinaga*, Larrinaga Co.

January, 1912, to August, 1912. Assistant, Roscoe & Little, consulting engineers, Liverpool.

November, 1912, to October, 1914. Draftsman, Seattle Const. & Dry Dock Co., Seattle, Wash.

February, 1915, to December, 1917. Draftsman, Fore River Shipbuilding Corporation, Quincy, Mass.

December, 1917, to April, 1918. Draftsman, Stone & Webster, Boston.

April 8, 1918. American International Shipbuilding Corporation.

Richard J. Pilson, squad chief, equipment: 1899, one year at sea, assistant purser, Plant Steamship Co. 1900 to 1903, Newport News Shipbulding & Dry Dock Co., Newport News, Va.; hull drawing room. 1903 to 1904, Neafie & Levy Philadelphia, drawing room. 1904 to 1906, Wm. Cramp & Sons S. & E. Bldg. Co., Philadelphia, engine drawing room. 1906 to 1917, New York Shipbuilding Corporation, Camden, N. J., engine pipe arrangements. R. C. H. S. Philadelphia manual training graduate.

William Harold Stabler, squad chief, equipment: June, 1907 to 1912, apprenticeship, Maryland Steel Co., marine department, Sparrows Point, Md. Two years in shops and three years in drawing room. June, 1912, to January, 1918, Maryland & Bethlehem Steel Co., marine drafting, general, including engine and boiler details, machinery and piping arrangements (engine and boiler room) January, 1918, to February, 1918, Baltimore Dry Dock & Shipbuilding Co., piping and machinery arrangements. February, 28, 1918, American International Shipbuilding Corporation, as squad chief, equipment division, machinery fabricating department.

Morris L. Potts, squad chief, equipment: Seven years at Philadelphia Navy Yard as draftsman. For last three years in charge of all oil-burning installations and propeller designs, together with a general line of pipe arrangements and other drafting that might come under the machinery division. Graduated from the Manual Training High School in 1907, where he had three years of shop practice, with general high school study. In 1911 completed a course of mechanical engineering with the International Correspondence Schools of Scranton, Pa.

The CHAIRMAN. The committee will now stand adjourned, subject to call.

(Thereupon at 1.15 o'clock p. m., the committee adjourned to meet at the call of the chairman.)

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# UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION

## HEARING

BEFORE THE

## COMMITTEE ON COMMERCE
## UNITED STATES SENATE

SIXTY-FIFTH CONGRESS

THIRD SESSION

ON

## S. RES. 170

DIRECTING THE COMMITTEE ON COMMERCE TO INVESTIGATE ALL MATTERS CONNECTED WITH THE BUILDING OF MERCHANT VESSELS UNDER THE DIRECTION OF THE UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION AND REPORT ITS FINDINGS TO THE SENATE, TOGETHER WITH ITS RECOMMENDATIONS THEREON

DECEMBER 19, 1918

Printed for the use of the Committee on Commerce

VOL. 4

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1919

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# UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION.

THURSDAY, DECEMBER 19, 1918.

UNITED STATES SENATE,
COMMITTEE ON COMMERCE,
*Washington, D. C.*

The committee met, pursuant to call, in the committee room, Capitol, at 10.30 o'clock a. m., Senator Duncan U. Fletcher, presiding.

Present: Senators Fletcher (chairman), Ransdell, Vardaman, Martin, Bankhead, Jones, Harding, Calder, Johnson, and Lenroot.

The CHAIRMAN. The committee will please come to order.

With reference to a resolution of the committee calling for certain information from the Shipping Board, I have a communication from the board to the effect that the information is being looked up; they have not yet made a report in response to that resolution; that is, the resolution of November 21.

The resolution introduced in the Senate by Senator Harding has been responded to; we have the report here, and it is, of course, at the disposal of the committee.

The resolution introduced by Senator King was referred to this committee, but somehow the Shipping Board assumed that it had passed, and so they went to work and prepared a report with reference to the matters mentioned in that resolution. It had not passed the Senate nor had it passed the committee, but it is very well, perhaps, to have the data here.

Mr. PIEZ. We were so eager to furnish the committee with all the information, Mr. Chairman, that we supplied it without waiting for it to pass.

The CHAIRMAN. So that that data called for by the King resolution is before the committee also with reference to housing.

Senator VARDAMAN. That has not been printed yet, has it?

The CHAIRMAN. No; none of these have been printed. It is now before the committee for us to dispose of when we get to it.

Mr. Piez, we will ask you, I think, first, to tell us with regard to Hog Island. It has been some time since we had any inquiry with reference to the situation there, and I think the committee would like to know just what the conditions are; and perhaps it may save a little time if we go back to the original situation, so that we can get rather a broad view of that Hog Island enterprise.

As I understand, the area of Hog Island is about 900 acres—a little less than that?

[illegible] BOARD [illegible] FLEET CORPORATION.

[illegible] OF MR. CHARLES [illegible] GENERAL, EMERGENCY FLEET CORPORATION.

[illegible] A little [illegible] Mr. Chairman about 848.

[illegible] The island [illegible] and has nearly 2 [illegible] on the Delaware River [illegible] a mile wide [illegible] that [illegible]

[illegible] as to the exact [illegible] a mile [illegible]

[illegible] what is [illegible] Hog Island [illegible] the water in the [illegible]

[illegible] here [illegible] as it existed in [illegible]

[illegible]

[illegible] panorama on [illegible]

[illegible] there is [illegible]

[illegible]

[illegible] that there [illegible]

[illegible]

[illegible] Mr. Chairman, the object of this [illegible] emphasizing what [illegible] reviewing it? I [illegible] I ask, what is the [illegible]

[illegible] Well, I [illegible] perhaps, it was easy to [illegible] what was being [illegible] I have no objection to [illegible] I [illegible] was well to start [illegible] in a broad way [illegible] see just what is being done there—what has been [illegible]—and what is being done there now.

[illegible] particular constru[illegible] that has been done, the cost, and the value of the land [illegible]

[illegible] I have no idea of inquiring into the value of the [illegible] details of the construction work; but I think it is [illegible] see what has been done there, particularly since our last [illegible] details.

[illegible] Well, I have no objection. I simply wanted to [illegible] something about the purpose of the particular inquiry [illegible]

[illegible] suggested by my colleague, Senator Lenroot, I will ask [illegible] now to enter upon a complete investigation of Hog [illegible] Well, [illegible] it, if that is the purpose.

[illegible] CHAIRMAN. That is a matter entirely for the committee [illegible]

Senator JOHNSON. Excue me; I am only asking for information, for those of us who are sitting here and who do not know about it. What is the purpose of the inquiry, and of the historical relation which is sought, apparently, by the chairman's questions?

The CHAIRMAN. If the Senator wants to know what my purpose is, I have no objection to saying that the statement has been made that there was over $50,000,000 spent on Hog Island, and only one ship has been produced. Now, let us see what has been done there, and what has been accomplished with that money. That is the purpose of the inquiry. My feeling is that we ought to bring Hog Island down to date, from where we left off.

Senator LENROOT. Then, if we start in on this inquiry, I take it that it will be understood by the committee that we will go into a thorough investigation?

Senator JOHNSON. That is it.

The CHAIRMAN. I do not know of any limit to it.

Senator JOHNSON. No; there ought to be no limit to it. We will go into it fully and completely——

The CHAIRMAN (interposing). But we can not cover the whole ground in one question.

Senator JOHNSON. No; we can not cover the whole ground in one question. But if we go into it, we will go into this thing thoroughly and complete it—in any manner that the chairman may suggest.

The CHAIRMAN. Of course, I have no idea of limiting the inquiry in any way in which the committee wants to pursue it.

Going back, then, to the condition of the property in September, 1917, Mr. Piez, it was necessary to do a considerable amount of filling and necessary to do a lot of piling, was it not—to put in a lot of piling?

Mr. PIEZ. Yes, sir.

The CHAIRMAN. Do you remember the number of piles that were driven?

Mr. PIEZ. I do not.

The CHAIRMAN. Is it not true that all the structures there, practically, are on piles?

Mr. PIEZ. Absolutely.

The CHAIRMAN. And it was necessary to drive piles for the structures erected on the ground?

Mr. PIEZ. Yes; all structures.

The CHAIRMAN. I have seen it stated that there are some 75 miles of railroad track on the island. Do you remember whether or not that is correct?

Mr. PIEZ. Slightly in excess of that, I think; about 85 miles.

The CHAIRMAN. And about how much area is covered by the buildings on the ground? I have seen it stated that there are some 20 acres covered by buildings.

Mr. PIEZ. I am not certain as to that. We could get the engineers to give you all of that data. I am not prepared to answer that, because I did not think your examination would go into such details.

The CHAIRMAN. Well, I am just asking in order to try to get a general view of that situation. Will you have any kind of pictures and photographs that will show the structures and buildings?

Mr. PIEZ. Yes; here [indicating photograph on table] is the complete panoramic view.

The CHAIRMAN. We will get to that later. Do you know how many men have been employed there, on an average, from the time the work began?

Mr. PIEZ. Somewhere between 25,000 and 35,000, on the average. I think: about 33,000 now.

The CHAIRMAN. How many shipways have been built there?

Mr. PIEZ. Fifty.

The CHAIRMAN. About how long are those ways?

Mr. PIEZ. I have not that exactly in mind.

The CHAIRMAN. Something over 500 feet each, are they?

Mr. PIEZ. Thirty of them are rather longer than that, and 20, for the cargo vessels, are somewhat longer than 500 feet; but I have not the exact dimensions in mind.

The CHAIRMAN. Ten of those ways are of permanent concrete construction, are they?

Mr. PIEZ. Yes.

The CHAIRMAN. And how many piers have you? I have seen it stated that there are 7.

Mr. PIEZ. Six or seven piers, about 1,000 feet long and 100 feet wide.

The CHAIRMAN. And what is the wet basin or outfitting basin?

Mr. PIEZ. The piers form part of the wet basin, the outfitting basin.

The CHAIRMAN. They lead up to that, do they?

Mr. PIEZ. Yes: it is shown here [indicating]; the vessels are alongside of these piers [indicating]; the fitting out really takes place here [indicating]——

Senator CALDER (interposing). The wet basin is really the space between the piers, is it not?

Mr. PIEZ. Yes: the entire area is known as the wet basin.

The CHAIRMAN. And it had to be dredged out?

Mr. PIEZ. It had to be dredged out; and the piers were so constructed that we could use them as ship piers later on. The piles were driven deeper, and we made the piers wider, and arranged them so that they could carry railroad tracks—two railroad tracks, some of them—and the area between the piers is dredged deeper, so that it can be used as transshipping piers if the Government so decides later on.

The CHAIRMAN. Is there a marginal wharf connecting these ways?

Mr. PIEZ. Yes, sir: that is shown here [indicating].

The CHAIRMAN. That is about 4,000 feet, is it?

Mr. PIEZ. I do not know. Can you supply that information, Mr. Holbrook?

Mr. HOLBROOK. About 4,000 feet.

Mr. PIEZ. About 4,000 feet.

The CHAIRMAN. Have there been railroad connections made with the railroad systems down to the yard, and through the yard, and out to the piers?

Mr. PIEZ. Yes.

The CHAIRMAN. And street car line connections have been made?

Mr. PIEZ. They have all been created.

The CHAIRMAN. All created. Does that all figure in as part of the cost of the plant?

Mr. PIEZ. The railroad connections do, but not the street railway connections.

The CHAIRMAN. Then, if it became necessary hereafter—suppose the Government did not want to use the entire 50 ways for building ships, would it be possible to use the 10 permanent concrete ways as a shipyard, and this outfitting terminal basin with all the piers constituting terminals for ocean-going vessels?

Mr. PIEZ. It might be possible to so arrange it; yes, sir.

The CHAIRMAN. Would it be valuable in that connection?

Mr. PIEZ. It would; yes, sir.

The CHAIRMAN. And make a splendid terminal system?

Mr. PIEZ. Splendid; it is very accessible to deep-water channels.

The CHAIRMAN. How much has the American International Shipbuilding Corporation been paid up to this time—do you know?

Mr. PIEZ. I think our total expenditures up to date are in the neighborhood of $58,000,000——

The CHAIRMAN (interposing). I mean, how much have they been paid?

Mr. PIEZ. Oh, how much they have been paid. We have paid them $80,000 in fees.

The CHAIRMAN. On account of the ships?

Mr. PIEZ. On account of the progress made on ships.

The CHAIRMAN. Have they received nothing on account of work in the yard?

Mr. PIEZ. No; they have received no fees at all on account of construction in the yard.

Senator CALDER. That is the total profit they have received up to date?

Mr. PIEZ. Yes, sir.

Senator VARDAMAN. Will you state in that connection how much has been paid to the subcontractors?

Mr. PIEZ. I can not do that, Senator; I do not know.

Senator VARDAMAN. Most of that work, however, was done by subcontractors, was it not?

Mr. PIEZ. A very large per centage of it; yes.

Senator VARDAMAN. And what was paid to them?

Mr. PIEZ. A fixed fee of, I think, 5 per cent on the estimated cost—a fixed fee.

Senator VARDAMAN. You do not remember the amount?

Mr. PIEZ. No; I do not remember the amount, but that can be supplied, Senator.

The CHAIRMAN. Have you any idea what the cost and expense to them have been in connection with the construction of the yard—I mean outside of the labor and material?

Mr. PIEZ. Well, I have got this only by rumor; but I understand that they have spent very nearly a million dollars out of their own pocket——

Senator VARDAMAN (interposing). Who?

Mr. PIEZ. The American International—in carrying certain charges against current, overhead expenses, etc.; but I do not know that; I am merely repeating a rumor.

Senator HARDING. Does that include the railroads?

Mr. PIEZ. No, sir; outside of the railroads.

The CHAIRMAN. Are you prepared to say what would be a reasonable compensation, for a company of that sort, for the construction of a yard of that kind?

Mr. PIEZ. I presume——

The CHAIRMAN (interposing). As an independent matter, outside of any particular contract?

Senator JOHNSON. May I ask, what is the object of the inquiry? Is it to prove that the contract was unjust to the American International? It strikes me that a question asked of Mr. Piez, as to what would be a reasonable sum to be paid to a particular contracting party, when the contract is before us, is rather a peculiar proceeding for the committee, which represents, presumably, a part of the Government.

The CHAIRMAN. Well, the Senator can make any criticism he likes of the question. I am asking the question, and the witness may answer it if he can; I do not know whether he can or not.

Senator JOHNSON. Well, I was simply asking for information as to the purpose; that was all.

Mr. PIEZ. I should think a fee of 5 per cent on a construction of that kind would not be out of the way.

The CHAIRMAN. Well, in normal times, what would you say would be a reasonable time to complete an enterprise of that sort—to construct such a yard?

Mr. PIEZ. Well, I have never carried on operations quite as large as that; so that my answer would be based simply on judgment. I should say that the preparation of plans alone for an enterprise as big as that, would take, certainly, six months, and certainly the completion of it would take a year and a half, if there were any attempt to do it economically, and not under pressure.

The CHAIRMAN. Have the contracts and the expenditures, the purchases and all, made there by the contractor, been approved by a representative of the Emergency Fleet Corporation?

Mr. PIEZ. Yes, sir.

Senator HARDING. Apropos of that question, Mr. Chairman—this seems to be a fair place to ask this: Is it, or is it not the fact that an official representative of the Emergency Fleet Corporation has been practically in charge of that enterprise?

Mr. PIEZ. For a considerable period of time; yes, sir.

Senator HARDING. I refer to Admiral Bowles.

Mr. PIEZ. The admiral was put in charge, I think, early in February or late in January.

Senator HARDING. Did he have the authority to veto any plans of the Shipbuilding Corporation?

Mr. PIEZ. Absolute authority; yes, sir. He had all the powers of the general manager under the contract, so far as his relationship with the plant was concerned.

The CHAIRMAN. Do you know how much had been spent at the time Admiral Bowles went there to take charge?

Mr. PIEZ. I think it was $19,000,000; I think that amount had been spent up to that time.

Senator HARDING. I have another question right in that connection, Mr. Chairman. You were asking about the number of ways: Was there a suggestion at any time from the American International

Shipbuilding Corporation that the number of ways be limited to 15 or 20?

Mr. PIEZ. Not since my connection with the Shipping Board commenced.

Senator VARDAMAN. When did your connection with it commence?

Mr. PIEZ. It began on November 7.

Senator VARDAMAN. Was there ever any discussion of reducing the original plan of 50 ways and operating to the highest efficiency and speed a less number?

Mr. PIEZ. Yes; we made that suggestion in January, in the report that we submitted to the Senate and suggested at that time that the number of ways be limited to those then completed, which was 31, I think.

Senator HARDING. Well, did Admiral Bowles, or the Committee on Commerce, or the Emergency Fleet Corporation alter that plan?

Mr. PIEZ. We altered it, because the admiral, after a very careful review and survey of the situation, felt that a limitation of the ways to 31 might very materially reduce our prospects of getting ships; and he felt that the program could be better carried out if the entire 50 were built.

The CHAIRMAN. When did the Emergency Fleet Corporation move its offices to Philadelphia?

Mr. PIEZ. June 1.

The CHAIRMAN. Of this year?

Mr. PIEZ. Yes.

The CHAIRMAN. Then, has there been any housing provision made for the workmen at Hog Island?

Mr. PIEZ. There were quite a number of barracks built there, yes, sir, to accommodate the workmen during the course of the construction of the yard. May I add something in answer to Senator Harding's question? We modified the relationship of Admiral Bowles to the yard, I think, in June——

Mr. CUTHELL. It was on June 26.

Mr. PIEZ (continuing). Reducing his power and control of the work of ship construction; but he retained his absolute control of the yard construction and expenditures.

Senator HARDING. Well, the main point I wanted to get at was whether the American International Shipbuilding Corporation or the Emergency Fleet Corporation, through Admiral Bowles, was responsible for going on with that elaborate program over there.

Mr. PIEZ. Well, the Emergency Fleet Corporation has got to accept that responsibility—I mean, after the conditions as they appeared in January. Of course, the entire plant was laid out on that basis, and the saving in cost that might have been effected by limiting the ways to 31 was not a very considerable part of the entire expenditure, because the plant had to be proceeded with on the original lines; too much work had already been done—$19,000,000 had already been spent in carrying out that original plan.

Senator VARDAMAN. Under whose direction?

Mr. PIEZ. That was all done under the direction of the Emergency Fleet Corporation. We had a representative there who approved of all the expenditures, and the plans, I think, were approved, before proceeding, by the general manager of the Emergency Fleet Corporation.

The CHAIRMAN. At that time, however, there were only 32 ways actually commenced, were there not?

Mr. PIEZ. At that time there were 32 ways, yes, sir, that were commenced and fairly near completion. You will remember that we covered that rather fully in the report that I submitted to this committee in January.

The CHAIRMAN. Now, the work on the yards from the beginning to the end, has been done in pursuance of designs and plans gotten out by the Emergency Fleet Corporation, has it not?

Mr. PIEZ. No; by the American International, but submitted to the Emergency Fleet Corporation.

The CHAIRMAN. And approved by them?

Mr. PIEZ. Approved by the Emergency Fleet Corporation. I may say this——

The CHAIRMAN (interposing). Well, were there any changes made since then, since the original design?

Mr. PIEZ. Yes; there were some changes made, because we decided to construct a different type of vessel there; the class B troopship, and very material additions to the plant and arrangement had to be made on that account, because it involved storage of a very considerable amount of material for the second class of ship that had to be kept separate from the materials for the first, or class A, ships.

I want to say this: That I do not think any complete plans of that property were ever submitted. The plans, like the yards, were a growth. I had never seen any complete plans of the yard that were presented prior to my coming with the Fleet Corporation.

The CHAIRMAN. Do you mean to say that, as you have gone on with the work, there have been additions and changes in both plans and equipment?

Mr. PIEZ. Yes. In the ordinary process of construction like that, the plans would be the first things to be completed; but we were under such tremendous pressure to finish the yards that the plans and the construction practically proceeded simultaneously. There may have been some broad, sketchy plans, but no thoroughly made-up plans in detail had been, to my knowledge, submitted to the Fleet Corporation up to that time. They were submitted in detached, separate form. That is my recollection of it, but you can get other witnesses who may be more competent to speak about that.

The CHAIRMAN. Well, was there any change made with the idea of completing more ships—say 10 or more ships at a time, or a change from that number to working on 50 ships at one time?

Mr. PIEZ. I do not quite understand your question.

The CHAIRMAN. I wanted to know whether or not the first idea was to go on and complete ships, say 10 ships, or something like that, and to confine the work to 10 ships largely, and then that afterwards was changed so as to have the work go on on all the hulls at the same time?

Mr. PIEZ. I do not remember any such change. The logical procedure would have been to have completed work on 10 ways for 10 ships, and build up your organization from that, building an organization to cover the first 10 ways, and then there would be time to grow and expand as the organization developed efficiently. I do not know whether we followed any such process.

The CHAIRMAN. You do not know whether Admiral Bowles followed any such process?

Mr. PIEZ. No; I am very certain he did not.

The CHAIRMAN. Now, we will come down to the work actually done later; but in regard to that housing proposition, how many men did that take care of, if you know?

Mr. PIEZ. At the yard?

The CHAIRMAN. Yes.

Mr. PIEZ. I do not remember. I think it was planned to take care of 4,000 men. Is that true, Mr. Holbrook?

Mr. HOLBROOK. About 4,000.

The CHAIRMAN. And that expense, you say, was added in the item as to the cost of the yard?

Mr. PIEZ. Yes.

The CHAIRMAN. With reference to the other fabricating yard, for instance, that at Bristol, there is a housing proposition at Bristol, also, is there not?

Mr. PIEZ. Yes; but that is separate and apart.

The CHAIRMAN. That does not enter into the cost of the yard?

Mr. PIEZ. No. At Hog Island the only housing that is included is the housing that was actually provided for the workmen within the limits of the property.

The CHAIRMAN. I understand.

Mr. PIEZ. The housing that we erected outside of the property limits, of course, is not included in the total cost.

The CHAIRMAN. At the Merchants' shipbuilding yard, was the ground high and dry?

Mr. PIEZ. Yes, sir.

The CHAIRMAN. It did not need filling and piling?

Mr. PIEZ. No; the Merchants Co. bought an old plant there, so that they had many buildings that they could use for the purposes of a shipyard, and the improvements were all made, the sewer and water connections were made into the property.

The CHAIRMAN. How many ways have they?

Mr. PIEZ. Twelve.

The CHAIRMAN. And at Newark, how many ways have they?

Mr. PIEZ. They have 28.

The CHAIRMAN. Was that ground high?

Mr. PIEZ. That had been filled in, and there was a bulkhead construction fronting the property.

The CHAIRMAN. How do those ways compare with the ones at Hog Island?

Mr. PIEZ. They are materially smaller. They accommodate a 5,000-ton ship, while the ways at Hog Island, 20 of them, accomodate 7,500-ton ships, and 30 accommodate 8,000-ton ships; those are very much longer ships, of the passenger type.

The CHAIRMAN. The yard at Newark, N. J., known as the Submarine Boat Co.'s yards, and the yard at Bristol, known as the Merchant yard—those are confined to one type of ship, are they not?

Mr. PIEZ. Yes, sir.

The CHAIRMAN. Whereas in the yard at Hog Island you provided for two types of ships?

Mr. PIEZ. Yes; two types.

The CHAIRMAN. One a 7,500-ton cargo ship and the other an 8,000-ton passenger ship?

Mr. PIEZ. Passenger ship; yes. Of course, the 8,000 tons does not give you any comparative idea of the difference in size of the ships, because the lines are so much finer on that class of ship; the ship is materially larger, and probably as long as a 12,000-ton cargo ship.

The CHAIRMAN. That necessitates larger ways and a more extensive plan, does it not?

Mr. PIEZ. Yes, sir.

The CHAIRMAN. Would there be any just ground of comparison as to the cost of the yards between the Merchant and Newark yards and the Hog Island yard?

Mr. PIEZ. Not unless all of these differences in the conditions and the construction that we proposed to do there are borne in mind and correction for them made. To merely compare them in cost, without having in mind the underlying conditions and the conditions antecedent to our beginning construction there, would, of course, lead you to a wrong conclusion.

The CHAIRMAN. Now, let us see what has been done after the filling in of the yard and driving of the piling. Do you remember the number of piles driven?

Mr. PIEZ. I do not.

The CHAIRMAN. Were they pretty long piles—about 70 feet?

Mr. PIEZ. Somewhere between 70 and 40 feet; yes—both classes.

The CHAIRMAN. And putting in the ways and the other structures on the ground—what has been done with reference to the building of ships?

Mr. PIEZ. We have got 50 keels laid, 1 ship delivered, and 5 others in the wet basin. The progress, as we estimated, Mr. Chairman, is the equivalent of the delivery of 25 class A ships up to date; that is, the progress made on these 50 ships on the ways and the 5 ships in the wet basin represent the equivalent of the work of completing 25 ships.

The CHAIRMAN. If the rivets had been driven on 25 ships, they would have been completed?

Mr. PIEZ. Yes.

The CHAIRMAN. Whereas they are spread out over 50 ships?

Mr. PIEZ. I have here [indicating] a little memorandum that I made that indicates the progress that has been made in the yard, judging by the rivets driven.

The CHAIRMAN. We will be glad to hear that read.

Mr. PIEZ. And the rivet drive is, perhaps, as good a measure of progress as can be used. In May, the number of rivets driven was 316,000; in June, the number was 576,000; in July, 857,000; in August, 1,187,000; in September, 2,230,000—that is, in spite of the influenza; in October, 2,857,000; in November, 3,248,000.

The number of rivets in a ship is about 480,000, as I remember it, so that we were producing in November at the rate of 7 ships per month—that is, expressed in the number of rivets driven—while we were only producing at the rate of 7 ships in a year or thereabouts in May last.

The CHAIRMAN. How does that record compare with the record made at the Submarine Boat or the Merchant yard?

Mr. PIEZ. The recent record at Hog Island is better than the concurrent record at the Submarine Boat or the Merchant Yard.

The CHAIRMAN. This ship that has been completed, is that the——

Mr. PIEZ (interposing). That is the *Quistconck*.

The CHAIRMAN. What is the condition of that ship?

Mr. PIEZ. Mr. Rossiter told me this morning that she was accepted by Lloyd's and given the highest registry—100 plus A.

The CHAIRMAN. Where is she now?

Mr. PIEZ. I think she is on the way to Panama—no, I am just told that she is at Norfolk loading coal for Panama.

The CHAIRMAN. Was there any trouble after the ship was launched?

Mr. PIEZ. The ship was launched without testing either the air or the water tanks; she was launched prematurely, and some difficulty was experienced in making the tanks tight. That is a difficulty, by the way, that we meet in practically all of the early ships of every yard.

The CHAIRMAN. Did it indicate that there was any mistake in the design or plan or in the process of construction of the fabricated ship?

Mr. PIEZ. No; I would not say so.

The CHAIRMAN. You think it is a perfectly good ship, do you?

Mr. PIEZ. It certainly passed muster with both Lloyd's and the American Bureau of Shipping. We insist that the vessels built at Hog Island and Bristol, by reason of the fact that they were of a new type, should pass the inspection of both of the classification societies; so that all of those ships are subjected both to Lloyd's and the American Bureau of Shipping.

Senator HARDING. As a matter of fact, Mr. Piez, the work has actually been hindered, has it not, by precipitate launching?

Mr. PIEZ. Yes; and that has been true in many cases. We put the brakes on premature launchings in the last three or four months. I think the vessel was probably delayed from 30 to 60 days by premature launching.

The CHAIRMAN. How long would it take to complete the five or six ships now in the outfitting basin?

Mr. PIEZ. I think they ought to deliver at least two more before the end of this month. The outfitting generally depends on the skill of the organization that you have built up. Hog Island, of course, has been handicapped very materially by reason of the fact that it had to draw on inexperienced men, largely, for its workmen; so that until they acquire the experience it will take rather longer to fit out. The older yards are fitting out vessels of that kind in from five to seven weeks. You see, even the *Quistconck* was launched on August 4 and was substantially completed within four months after that, which is not a bad record for the first ship of a yard.

Senator HARDING. Well, it is more difficult, is it not, to finish a ship after it is in the water than it is to prosecute the completion on the ways?

Mr. PIEZ. Well, it is somewhat more difficult; yes. The trouble is that the driving of the rivets that are left out interferes with the actual work of installing the machinery and the piping.

We submitted, Senator, in that table to which the chairman has referred, a diagram showing the difference between launching and

delivery—that information that Senator Harding was asking for—and those two diagrams show what we have reached as to the time between those two stages of completion [examines table].

The average time consumed in fitting out is about 52 or 53 days, and this table [indicating] indicates the time elapsed from the laying of the keel to the launching, and this [indicating] is the time elapsed to the actual delivery of the vessel. So that the difference between these two represents the time in the wet basin, being fitted out. This [indicating] represents the elapsed time on the ways. You see there [indicating] is the case of a wooden ship, which would average 340 days. The steel ships are averaging now about 190 days for deliveries.

Senator CALDER. That first ship, then, took about twice as long——

Mr. PIEZ (interposing). That took about twice as long as the average; not a bad record, considering what they had to contend with.

The CHAIRMAN. What has been the output of the Merchant and Submarine boat yard?

Mr. PIEZ. The Submarine boat yard had considerable trouble in the transmission gears of the turbine. I understand that the first ship, the *Agowam*, which was completed something like 40 days ago, has been finally accepted. I think there are 16 ships in the wet basin at the Submarine boat yard. These vessels, however, are materially smaller, and I as remember it they have about 300,000 or 320,000 rivets as against 480,000 at Hog Island.

At the Merchant yard the first vessel is on a trial trip and met an accident in rounding—nothing that was due to the ship at all, but due rather to the management or operation of it in running the trial trip. So that the *Quisconck* was the first delivery of the Government fabricating yards.

The CHAIRMAN. Well, have you had trouble with those turbines generally at the Submarine boat yard?

Mr. PIEZ. We have had trouble with the first set. This is the third set of gears that we have got in there. The gears were apparently set too close in meshes in the first boat. I understand, however, that the defects have been corrected in this last set of gears. That is not anything that the yard ought to be held responsible for.

The CHAIRMAN. No; that was the error of the Westinghouse people, who made the turbines, I understand

Mr. PIEZ. Yes, sir; the Westinghouse Co.

The CHAIRMAN. You think you have that corrected, do you?

Mr. PIEZ. I think so. A trial will demonstrate that, however, better than my statement.

The CHAIRMAN. Yes.

Senator CALDER. Did I understand you correctly to say that neither the Merchant Shipbuilding Corporation nor the Submarine Boat Co. has up to date delivered a single ship?

Mr. PIEZ. The Submarine Co. has just within a day or two finally turned over the *Agowam*. She has been loaded for 30 days, but her gears went back on her—they were cut.

Senator CALDER. How about the Merchant Co.?

Mr. PIEZ. I have not the exact date in mind, but the Merchant offered their first vessel for test about three weeks ago.

Mr. CUTHELL. Yes; that is correct.

Mr. PIEZ. If I may, I would like to volunteer this statement: In arriving at our judgment as to the progress in mind, a comparison has been made as to other yards; of course, the conditions have been unusual. But the best example that we have got is that of the Skinner & Eddy Co., at Seattle, Wash. They are producing 26 ships this year at a 5-way yard, and hold the record, not only in the speed of delivery but also in maintaining that speed. That is, their vessels come out regularly in somewhere between 72 and 84 days each. They did not establish a record on one vessel and then lose it on the next.

The Skinner & Eddy yards started in 1916, early in that year, I think about the end of January. At the end of their first year they had built a 5-way yard and delivered two vessels of 8,800 tons capacity. At the end if the second year they delivered another 8 vessels: so that their record for the first 2 years, 24 months, was the erection of a 5-way yard and 10 ships, and that was under peace-time conditions, in a location where shipbuilders were rather numerous.

That has been as good a record as has been made in the yards recently constructed; that is, constructed within the last two or three years. Their first year's output was 2 ships and the yard itself, and the second year's output was 8 ships, and the third year's output will be 26 ships. That shows how essential time is in the development of the organization and the development and experience of the men.

Senator CALDER. Do you pay them extra for delivery within the time limit for completion, and do you pay their workmen the extra cost of labor?

Mr. PIEZ. No; we pay the company a bonus for early completion, but they control that themselves. I think they regularly fit out a ship within 35 days.

Senator CALDER. Do they generally live up to that time?

Mr. PIEZ. Yes; they have surpassed it right through.

Senator HARDING. Well, the bonus enabled them to pay more to their workmen, did it not?

Mr. PIEZ. Yes.

Senator HARDING. And they skimmed the labor market for workmen, did they not?

Mr. PIEZ. Yes; they got the cream of it. They give their workmen every stimulus that they can—they did that before we did, even.

Senator CALDER. They pay their laborers more than anybody else, do they not?

Mr. PIEZ. They did at first. I should say that they stick to the scale now: they are not paying a larger percentage on the scale than any other yards in their district now. They are all paying above the scale in that section.

The CHAIRMAN. Are there any other questions of Mr. Piez?

Senator JOHNSON. Yes; I would like to ask him some.

Mr. Piez, you assumed the duties of your particular office at what time, if you please?

Mr. PIEZ. I came here on the 7th of November, Senator, and was made general manager about the middle of December.

Senator JOHNSON. Yes; it was the middle of December before you began the active discharge of the duties of general manager, was it not?

Mr. PIEZ. Yes.

Senator JOHNSON. What was the date of the execution of the contract concerning Hog Island?

Mr. PIEZ. The 13th of September.

Senator JOHNSON. You had nothing to do with that, did you?

Mr. PIEZ. No, sir.

Senator JOHNSON. And the original negotiations and all matters relating to the execution of the contract were consummated before you began your duties?

Mr. PIEZ. Yes.

Senator JOHNSON. So that when you came into your particular office, in the discharge of your duties, you found a contract there, the contract which is now in existence?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. That contract provided for the construction of a shipyard at Hog Island; it gave to the Government an option that is there indicated, of ultimate purchase; provided that fees should be paid, and the like?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. You recall, do you, the fee that was fixed by the contract?

Mr. PIEZ. Fifty-five thousand dollars per vessel; substantially 5 per cent on the estimated cost.

Senator JOHNSON. Substantially 5 per cent on the estimated cost. I asked you that because, in response to a question of the chairman, you said you thought 5 per cent was a reasonable fee.

Mr. PIEZ. In normal times. He asked that about the construction of the yard, however.

Senator JOHNSON. About the yard construction?

Mr. PIEZ. Yes.

Senator JOHNSON. And you did not respond, then, that that was a reasonable charge for ship construction?

Mr. PIEZ. That was not the question; no, sir.

Senator JOHNSON. So that your response related merely to the construction of the yard?

Mr. PIEZ. Of the yard; yes.

Senator JOHNSON. Well, was it your understanding that the yard was to be constructed by the other party to the contract—by the American International?

Mr. PIEZ. That is the provision of the contract; yes.

Senator JOHNSON. Well, do you know whether or not they did construct it?

Mr. PIEZ. They constructed that yard, as general contractors usually do, by assuming certain functions and subletting other functions.

Senator JOHNSON. And in what proportion did they sublet other functions?

Mr. STONE. I can answer that—18 per cent.

Mr. PIEZ. Mr. Stone says 18 per cent was sublet. I am not familiar with the amount.

Senator JOHNSON. You know nothing about the amount; then I accept Mr. Stone's statement as accurate in that regard; 18 per cent, you say?

Mr. STONE. So I understand.

Mr. KNIGHT. Here is a statement as to that.

The CHAIRMAN. Do you wish that to go in the record?

Mr. KNIGHT. Yes; that can go in.

Senator JOHNSON. Would you like to have this read into the record, Mr. Chairman?

Senator RANSDELL. I would like to hear it read.

Senator JOHNSON. This letter is marked "copy," and is as follows:

DECEMBER 17, 1918.

P. O. KNIGHT, Esq.,
*1305 Medical Arts Building, Philadelphia, Pa.*

DEAR SIR: Confirming telephone conversation of to-day, we would say that the total cost of yard construction handled by subcontractors is in round figures $12,000,000, which on a basis of $65,000,000 for total costs would be about 18 per cent of the total. This figure we believe to be correct within 5 per cent, which, we understand, is sufficiently accurate for your purposes at the present time. If you need further detail on this the same can be obtained.

In connection with the subcontract work you are, of course, aware that the labor was paid direct by us and the material supplied by us, but the subcontractors handled the work.

This figure can be reconciled with the statement by Mr. Robinson, on page 2075 of the hearings before the Committee of Commerce last spring, which gives 40 per cent as about the amount let out on subcontracts by considering that that was the portion of work so handled at that time. On page 2011 of the testimony Mr. Robinson mentioned 30 per cent, and estimated that the proper proportion would lie somewhere between 30 and 50 per cent, basing his measure upon the proportion of common labor employed. This we do not believe is inconsistent with the present figure.

Yours, very truly,

G. W. MUHLFELD,
*Senior Vice President.*

How are contracts sublet?

Mr. PIEZ. That I do not remember.

Senator JOHNSON. Who sublets them?

Mr. PIEZ. Probably the American International Co. under the general supervision of our representative there, and with our approval.

Senator JOHNSON. When you say "under the general supervision of your representative there," to whom do you refer?

Mr. PIEZ. In the earlier stages of the operations Mr. William Ferguson, I think, was our authorized representative there on ship construction and Commander Reed, of the Navy, was our representative on the yard construction.

Under our contract we had absolute control, under section 27, of practically all the operations. That section reads as follows:

The agent shall, in the performance of its agreement hereunder, comply with and be bound by all directions, instructions, and decisions of the owner or its authorized representatives, and compliance—

Senator VARDAMAN. Are you reading from the contract now?

Mr. PIEZ. Yes. [Reading.]

And compliance by this agent with any such directions, instructions, or decisions shall be a justification and protection to the agent for my action so taken.

Under that clause we have always had the authorized representatives on the ground. Those authorized representatives were afterwards superseded by Admiral Bowles, when he was sent to Philadelphia early in February.

Senator JOHNSON. Where is Commander Reed now, please?

Mr. PIEZ. He was assigned back to the Bureau of Yards and Docks; he is detailed there now.

Senator JOHNSON. Did he continue in his active supervision until Admiral Bowles took charge?

Mr. PIEZ. I think he did—about that time, Senator; I am not quite certain.

Senator Johnson. Are you familiar with the reports that were rendered by him?

Mr. PIEZ. Yes; fairly familiar. I have not refreshed my mind about them, but I was familiar with them at the time because it was due to certain reports made by Commander Reed and Admiral Rousseau that I made certain statements in the report that I submitted to the committee in January last.

Senator JOHNSON. Are you familiar with any reports that were submitted concerning the land at Hog Island prior to its purchase for the Shipping Board?

Mr. PIEZ. I have a digest of our files here.

Senator JOHNSON. Have you any statement that was made concerning this land, or any part of it, prior to the execution of this contract?

Mr. PIEZ. A statement of what kind?

Senator JOHNSON. A statement in writing that was made to the Shipping Board.

Mr. PIEZ. I have not any statement of that kind with me now. I think we have in our files——

Senator JOHNSON (interposing). Is there such a statement?

Mr. PIEZ. There are statements giving the land value before we approved of the purchase by the American International Co.

Senator JOHNSON. You have those with you, have you?

Mr. PIEZ. I have the file in my office, but I think I have a digest here, if you will pardon me for a moment [examining papers].

I have a complete digest here, Senator, that was prepared for me.

Senator JOHNSON. Well, the query is, Mr. Piez——

Mr. PIEZ (interposing). I can have the files here this afternoon and submit the actual letters, if it is desired.

Senator JOHNSON. Are you personally familiar with any of the letters that were written concerning this land prior to the execution of this contract?

Mr. PIEZ. I have seen only the report of the appraisers that were asked by Admiral Capps to report on the property. I am familiar with those from their being in the files.

Senator JOHNSON. Are you familiar with any statement that was made by any private citizen of Philadelphia with reference to the particular land before it was purchased?

Mr. PIEZ. No; I am not familiar with that.

Senator JOHNSON. Do you know whether any estimate of that particular land was given before the execution of this contract?

Mr. PIEZ. I remember reading in the files the other day a report that justified a price of $1,500, whereas $2,000 an acre was paid and another report, as I remember, justifying a price of $2,0[illegible] per acre.

Senator VARDAMAN. Who made that report?

Mr. PIEZ. I will not trust to memory on that.

Senator JOHNSON. Do you know whether or not any proposition was made concerning this land to the Government prior to the execution of the contract?

Mr. PIEZ. No.

Senator JOHNSON. Have you anything in mind as to the offer of the land at a certain price before the execution of the contract?

Mr. PIEZ. Only rumors.

Senator JOHNSON. Well, will you bring your file down here?

Mr. PIEZ. I will bring the file here.

Senator JOHNSON. I simply want that which relates to this land and the price of this land. Will you see whether or not there is a report on file in your office in which the suggestion was made that this land should be used for specific purposes, for terminal facilities and the like, and the price fixed concerning the land prior to the execution of this contract?

Mr. PIEZ. I will bring down the files this afternoon when the committee meets again.

Senator JOHNSON. Well, I assumed that, as you had been looking through the files, if there was such a document you would have run across it.

Mr. PIEZ. I remember several letters, one written by Congressman Hampton Moore, for instance, on this subject—a letter to Mr. Hurley. I remember several letters that were written by appraisers there at the request of Admiral Capps. I remember from the files that Commander Bakenhus and Mr. White, of our legal staff, were sent to Philadelphia to investigate and verify the appraisals.

Senator JOHNSON. Do you know Congressman Edmonds?

Mr. PIEZ. I know who he is.

Senator JOHNSON. Do you know whether or not there is anything from him on file?

Mr. PIEZ. I did not see anything from him in the files; there may be.

Senator JOHNSON. Have you talked to him at all at any time concerning this particular land, or its value?

Mr. PIEZ. I have not; no, sir.

The CHAIRMAN. Then, if you do find any proposal in respect to land on file with you, will you produce it whenever convenient?

Mr. PIEZ. Certainly.

Senator LENROOT. In that connection, do you know of any statement made by Gen. Goethals?

Mr. PIEZ. Pardon me, I did not understand.

Senator LENROOT. Do you know of any statement in the files made by Gen. Goethals, as to the value of the land?

Mr. PIEZ. I do not, no; I do not remember. I glanced through the files rather hastily. I did not expect that this inquiry would cover Hog Island. I rather expected it to cover the reports that I have submitted.

Senator JOHNSON. We did not know either, until we came here this morning.

Mr. PIEZ. So I have not had time to prepare myself as to the details.

The CHAIRMAN. That was all done under Gen. Goethals, was it not?

Mr. PIEZ. No; the final purchase of the land was made under Admiral Capps's and Mr. Hurley's régimé; the scheme was outlined, however, under the régimé of Mr. Denman and Gen. Goethals the contract was completed, or substantially completed, and ready for the signature just about the time Gen. Goethals and Mr. Denman go out—late in July.

Senator RANSDELL. Do you know whether or not Gen. Goethals approved the purchase of the land, and the price that was paid for it

Mr. PIEZ. I do not.

Senator JOHNSON. Will you look, if you please, to ascertain whether there was a memorandum of Gen. Goethals there in relation to the price of the land?

Mr. PIEZ. Yes.

Senator JOHNSON (continuing). So that, at some time in the future, at your convenience, we may have it, if such a thing exists.

Mr. PIEZ. Do you want a transcript of our files, with all of those letters, if we can find them?

Senator JOHNSON. If the original memorandum of Gen. Goethals is there, I would like for you, if you please, to bring it so that we may put it in the record.

Mr. PIEZ. Yes.

Senator JOHNSON. And if there was a proposition submitted by certain citizens of Philadelphia concerning this land, in which statements were made as to its value, I would like to have that brought also, if you please.

Mr. PIEZ. Yes, sir. And you say that a letter was written by Mr. Edmonds, too?

Senator JOHNSON. I am not clear as to that. No; I did not say so; I was asking you whether you had had any conversation with Mr. Edmonds in respect to the matter.

Mr. PIEZ. No; I have not.

Senator JOHNSON. You say the American International has become liable for $1,000,000. That consists of what, if you please?

Mr. PIEZ. That consists of certain expenses, and the salaries of officers that, under the contract, are not chargeable against the cost of the ships. I do not know that at first hand, Senator; I said I had it merely from rumor that they were out of pocket about $1,000,000, or substantially $1,000,000, for overhead administrative charges that were not properly assessable against that contract.

Senator JOHNSON. Well, I assume that that information was probably obtained from officers of the company?

Mr. PIEZ. Yes.

Senator JOHNSON. And they can supply the details, if it is desirable?

Mr. PIEZ. I presume so.

Senator JOHNSON. So that you were speaking merely from what they had said to you?

Mr. PIEZ. Merely from gossip.

Senator JOHNSON. Merely from gossip; yes.

Mr. PIEZ. And I think I so stated at the time.

Senator JOHNSON. And so far as these specific items are concerned that made up that $1,000,000, you know nothing about that?

Mr. PIEZ. Practically nothing.

Senator JOHNSON. Now, you say $80,000 has been paid to them. The inference from the statement that they had become liable for $1,000,000 and that only $80,000 had been paid to them—the implication was that they were in a losing game. Well, of course, $80,000 has been paid to them, I presume, in accordance with the contract?

Mr. PIEZ. Yes.

Senator JOHNSON. The contract prices will be paid them in accordance with the contract, will they not?

Mr. PIEZ. Yes.

Senator JOHNSON. And these contract prices are so much per ship, representing substantially 5 per cent upon the cost of the construction of the ship?

Mr. PIEZ. Upon the estimated cost of construction.

Senator JOHNSON. Upon the estimated cost of the construction of the ships; yes. So that they will recoup themselves, unquestionably, ultimately for the expenses that they are out?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. All right. Now, approximately, what will be the figure that will come to them from the erection of the ships that are now under construction?

The CHAIRMAN. And will you state, in that connection, if there are any penalties attached for noncompletion at certain times, and if so——

Senator JOHNSON (interposing). If there are any deductions in favor of the American International, I desire him to state that as well.

The CHAIRMAN. That is purely voluntary. We want to get the facts, and I think it is entirely right for me to suggest that.

Senator JOHNSON. That is true, Mr. Chairman. We want the facts, and all of them and not half of them.

The CHAIRMAN. Yes. We do not want him to say that $55,000 is to be paid on a ship if there is any qualification of or deduction from that amount.

Senator JOHNSON. Yes.

The CHAIRMAN. That is what I want—simply the exact facts in the matter.

Senator JOHNSON. Yes; I want all the facts, too.

Mr. PIEZ. The fees are as follows:

For the 50 class A ships the estimated total cost is $65,000,000; the normal fee is $2,750,000; the minimum fee is $2,050,000.

On the 70 class B ships the total estimated basic price is $115,500,000. The normal fee is $5,775,000; the minimum fee is $4,550,000.

Senator VARDAMAN. What do you mean by the "minimum fee"?

Mr. PIEZ. There are certain penalties attached. There is a penalty of $14,000 if they are behind or exceed the estimated basic cost.

Senator JOHNSON. Do I understand, Mr. Piez, that after all deductions that may be made the minimum fees will still be the sums that you have indicated?

Mr. PIEZ. Yes; that is the lowest fee they can make.

Senator JOHNSON. So, answering the question of the chairman, the minimum would represent the fee with all deductions?

Mr. PIEZ. Substantially the guaranteed fee; yes, sir.

Senator JOHNSON. Yes.

Mr. PIEZ. Now, as to the 60 additional ships—may I give the figures as to those?

Senator JOHNSON. Yes.

Mr. PIEZ. The estimated cost is $85,500,000; the normal fee is $3,150,000; the minimum fee is $2,310,000.

The total for the 180 ships is a cost not to exceed $256,000,000; that is, a basic price of $256,000,000. The normal fees are a total of $11 675.000, and the minimum fees would be $8,910.000.

The CHAIRMAN. When were those additional ships contracted for?

Mr. PIEZ. In May.

The CHAIRMAN. In May of this year?

Mr. PIEZ. Yes, sir.

Senator HARDING. Mr. Chairman, it may not be appropriate at this point, but this seems to be a good place to ask a question I have in mind. Is it the policy of the Emergency Fleet Corporation, Mr. Piez, to go on laying keels over there at Hog Island under the contract?

Mr. PIEZ. Yes. We have not decided either to stop the operation or to take it over, if that is what you are asking.

Senator HARDING. Let me put it in another way: Does the Emergency Fleet Corporation propose, after the emergency has passed, to go on building ships at the present cost?

Mr. PIEZ. We have not been instructed otherwise, Senator. And it would be a very expensive operation if we decided suddenly to stop. In all of our shipyards the work is so well under way that a cancellation of the contracts or a suspension of operation under it would be an extremely expensive affair.

Senator HARDING. Would you go on with it if it were a private enterprise, at the present rate of cost?

Mr. PIEZ. I believe I would as a choice between two evils.

Senator HARDING. Approximately how much per ton are these ships costing you?

Mr. PIEZ. That is pretty difficult to say, at Hog Island, because——

Senator HARDING (interposing). Well, approximately, $200, $225 or $250?

Mr. PIEZ. Well, it would be a pure estimate on my part. I should suppose it ought to come somewhere about the first figure you state or below it; that is, the first fifty. But they have advanced to such stage that we have advanced a very considerable amount of money on the work; the amount of money we have spent practically represents the completion of 25 ships. We stand committed to a policy——

Senator HARDING (interposing). I am not questioning the policy as to the ships on the ways; there can not be any disagreement about them. Any ship with the keel laid and all the material on the ground should be finished.

What I am interested in is: Are we going on spending Government money building ships at, we will say, in extreme fairness, $2[illegible] per ton, since there is no dispute about that being two or three times the normal cost, and at least three times what any other country is paying for ship construction?

Mr. PIEZ. Well, I do not think that is borne out by the information we have, Senator, as to the cost in other countries. I do not think the prewar cost could be used as a gauge, because I do not believe either labor or material will for some years go down.

Senator HARDING. Well, let us see: What is England paying per ton now?

Mr. PIEZ. I understand she is building ships at £28 a ton—that is, about $135.

Senator VARDAMAN. What did you say you were paying?

Mr. PIEZ. Well, it depends a little on the type of ship. Normally, I think our cargo ships will represent a cost of about $190 or $195 a ton.

Senator HARDING. Are you actually getting any at that figure?

Mr. PIEZ. Yes; we have got a number of contracts at that figure.

Senator HARDING. What is the maximum cost you are paying under contract?

Mr. PIEZ. That depends on the type of ship, whether it is a single-deck or a double-deck or a tanker, and so on.

Senator HARDING. Well, take a high-class cargo ship.

Mr. PIEZ. And it depends on the size of the ship. For instance, the lake ships, per dead-weight ton, are higher than ocean ships of their carrying capacity. The lake ships are costing us somewhere between $200 and $210 per dead-weight ton. But please bear in mind that that is not quite as high as the Cunard Line contracted for before we went into the war; and I think these prices ought to be judged by the fact that shipping is rather scarce and freight rates, in consequence, are very high, so as to justify rather high prices at this time.

Senator HARDING. The point I am trying to get at is this: Ships constructed now are no longer for a war emergency—they are for the upbuilding of the American merchant marine in peace times?

Mr. PIEZ. Yes, sir.

Senator HARDING. As a business proposition, how could you hope to meet competition with an agency that cost, let us say, three times the fair cost in peace times—a fairly high cost? You know the shipping of the world was produced at $70 a ton or even less before the war.

Mr. PIEZ. Yes; but would not that apply to all of the industrial processes? Is not everything on an inflated basis?

Senator HARDING. Certainly.

Mr. PIEZ. Could you stop all of the industrial processes until we got back to normal conditions?

Senator HARDING. I am not proposing that you should stop suddenly. Even if you do not lay another keel until you have gotten somewhere near normal conditions, and written off the war emergency cost you would be operating there for a year to come, approximately.

Mr. PIEZ. Hardly.

Senator HARDING. Well, you would not work, of course, with the present force; but no business man on his own account would pretend to go on with Hog Island or any other yard with the present working force.

Mr. PIEZ. But you are committed for substantially all of the material at the higher prices. You have got to accept that; you can not cancel it: the only economy you can achieve would be to reduce the price or increase the efficiency of labor.

Senator HARDING. Well, I do not want to monopolize your attention; but I want further information on this subject.

Mr. PIEZ. Yes; it is a very excellent subject to pursue.

Senator HARDING. What are you going to do—assuming that you will go on building at the present cost—are you then going to write off this extraordinary cost in putting these ships into the channels of trade?

Mr. PIEZ. I presume that would be the natural thing, to write it off out of the proceeds of operations. If you take your restrictions off your charters and your freight rates, you would get ample returns to justify the construction of the ships at the present prices.

Senator HARDING. You mean, then, to write an indirect subsidy by the writing-off process?

Mr. PIEZ. Hardly that. Depreciation or amortization is hardly a subsidy, in the ordinary industrial enterprises.

Senator HARDING. Well, you know I am a subsidist, so we will not quarrel on that, but this is the point: Would anybody proceed to build ships under present conditions when they knew we were going to write off the cost?

Mr. PIEZ. I should say so; yes.

Senator HARDING. After the emergency has passed?

Mr. PIEZ. Yes; because the emergency has not passed. There is a very considerable lack of shipping, and the need for it exists, and construction ought to go on to meet that need; and, as in the case of every industry and line of operation, the returns at the present time ought to justify the increased cost.

Senator RANSDELL. What is the estimated total shortage of shipping now for the world?

Mr. PIEZ. It has been estimated, roughly, at 20,000,000 dead-weight tons.

Senator RANSDELL. That is, the world is short that many excess tons of shipping?

Mr. PIEZ. Yes. Whether that measures the immediate shortage or a shortage after the lines of trade have been used, I do not know: it measures the actual difference between what would have been created and would exist under normal peace times to-day and what actually does exist.

Senator RANSDELL. The freight rates are to be abnormally high and will, in all likelihood, continue to be abnormally high for some time, will they not?

Mr. PIEZ. Yes, sir; except where they are controlled by the Shipping Board action.

The CHAIRMAN. Suppose you wanted to make contracts for building ships to-day, would you save anything on the contract you have for these ships?

Mr. PIEZ. I doubt very much if you could, if you wanted them for immediate delivery. If you could postpone delivery and accept it two or three years hence, I presume you could save something: but the need for ships is now, and we may be justified in paying the higher price now rather than waiting and taking the chance of a lower cost later on.

Senator CALDER. What is the total tonnage of steel ships contracted for by your board?

Mr. PIEZ. From the beginning, about 13,000,000 tons.

Senator CALDER. What proportion of that tonnage has been built?

Mr. PIEZ. I will give you the exact figures in a moment.

Senator CALDER. I do not mean the ships delivered entirely; I mean, of the whole problem, how much has been completed?

Mr. PIEZ. I will give you that in a minute [examining paper]. I can give you the actual work that is under process now.

The CHAIRMAN. The table of delivered ships is found on page 177 of the report of the Shipping Board for the present year.

Mr. PIEZ. I can give you the figures right up to date.

Senator CALDER. What I really want to know is this: You have contracted for 13,000,000 tons of shipping, have you?

Mr. PIEZ. Yes; steel ships.

Senator CALDER. Yes; steel ships; that is your whole program, is it?

Mr. PIEZ. Yes.

Senator CALDER. What proportion of that program has been completed? I do not mean necessarily the number of ships completed; I want to know, of the whole program, how much is ready?

Mr. PIEZ. Somewhere between 20 per cent and 25 per cent has been delivered. Fully 50 per cent to 60 per cent, as I remember it, is well under way.

Senator CALDER. Of the whole?

Mr. PIEZ. Of the entire amount; yes.

Senator CALDER. So that about 60 per cent of the whole program has been worked out, has it?

Mr. PIEZ. Yes; substantially that.

Senator RANSDELL. Do you mean by that that 60 or 70 per cent of the rivets necessary in finishing those ships have been driven?

Mr. PIEZ. The fabrication and the manufacture of the machinery and all of the preparation.

The CHAIRMAN. This summary given on page 179 of the report of the Shipping Board gives the total dead-weight tonnage of keels laid as 7,942,463.

Mr. PIEZ. I can give it to you exactly now. We have laid keels of 934 steel ships, aggregating 6,147,000 tons.

We have launched, out of that 934, 548 steel ships with a tonnage of 3,485,861. We have actually delivered 433 of that total, with a tonnage of 2,263,406. Now, there is a considerable amount of work that precedes the laying of the keel. Somewhere about 30 or 35 per cent of the effort, the work on a ship, is done preliminary to the laying of the keel.

So that out of the total program of 13,000,000 tons keels have been laid for substantially half; deliveries have been made of 20 per cent. In addition to that, 25 per cent are in the wet basins being fitted out and the machinery installed and 386 are on the ways.

You see, it is rather difficult to step right into the midst of a program like that and even check it.

Senator CALDER. Yes.

Mr. PIEZ. And I feel that we are justified in proceeding, bearing in mind everything that can be said on the side of increased cost at the present time; but if we disband and disrupt our organization, and then have to recreate it in order to make use of this material that we temporarily throw aside, I think it will cost us more than we will gain by waiting. Then, the market for shipping at this time is such as to justify this procedure. Always, in times of great demand, the costs are high—prices are high.

Senator HARDING. Then, Mr. Piez, in view of the cost which has come to the Government in carrying on all these policies, why would it not be a fair policy to liquidate a reasonable loss on these materials, and let private enterprise go on with this building?

Mr. PIEZ. Of course, that is for Congress and the administration to determine, Senator, as to just what our procedure shall be there.

Senator HARDING. You are not careful of your language. You said "Congress and the administration." [Laughter.]

Mr. PIEZ. Perhaps not; I stand corrected; that is due wholly to my inexperience in such matters.

Senator JOHNSON. If I may take your mind back to the question of the fees which were to be received by the American International, I should like to ask you some questions as to that.

(At this point the committee took a recess of five minutes, to permit the members to answer a roll call of the Senate, after which the following proceedings were had:)

The CHAIRMAN. All right, Senator Johnson, the committee is ready for you to proceed with your questions.

Senator JOHNSON. Returning to the question which I was propounding when Senator Harding took up the interesting matter of our policy, as I understood it, the normal fee which will ultimately be paid to the American International, if a normal fee be paid, will be $11,675,000?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. The minimum fee which, under any circumstances, the American International will receive, will be $8,910,000?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. And that is upon the construction of how many ships, numerically?

Mr. PIEZ. 180.

Senator JOHNSON. 180—all in accordance with the contract and the supplementary contract entered into with the American International?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. The American International—you will pardon me for asking something that you have already mentioned here, perhaps, but inasmuch as this is a new hearing, into which we have just come, I must make that my apology to you for asking you these questions.

Mr. PIEZ. Yes, sir.

Senator JOHNSON. The American International received these sums, or these particular sums, whichever it may be, for what?

Mr. PIEZ. For constructing the yard and supervising and conducting the construction of 180 vessels.

Senator JOHNSON. For constructing the yard and supervising and constructing the 180 vessels?

Mr. PIEZ. Yes.

Senator JOHNSON. That is accurate, is it?

Mr. PIEZ. Yes.

Senator JOHNSON. It paid for the construction of the yard various sums to contractors as well, did it not?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. The percentage has been stated to the committee this morning by Mr. Stone—I assume that is Mr. Stone, of Stone & Webster?

Mr. STONE. Yes, sir.

Senator JOHNSON. The particular ships that are now being built at this particular plant will aggregate about what?

Mr. PIEZ. I am unable to say that, because the work has not progressed far enough.

Senator JOHNSON. Can you approximate it?

Mr. PIEZ. I can hardly do that without further investigation. You see, only one ship has been completed. All the others of the first 50 are in various stages of completion; the accounts are being kept in lots, and I would hesitate to say where it would land. I presume it would land somewhere between $200 and $220 a ton, somewhere around that. I am not certain even as to that, however.

Senator JOHNSON. But your best approximation that you could now give would be in the neighborhood of $220?

Mr. PIEZ. Yes; it may fall somewhat short of that. That is, on the first lot, the first 50.

Senator JOHNSON. Well the subsequent ones?

Mr. PIEZ. The cost of them ought to be materially reduced.

Senator JOHNSON. When you say "materially," you mean about how much, please?

Mr. PIEZ. Well, I should say 15 per cent. You see we have cut out all overtime work and all Sunday work, which added very materially to the labor costs of the ships.

Senator JOHNSON. You mean because of that rule or that order that has been made since the armistice, that that reduction will be made?

Mr. PIEZ. Yes—and the growing efficiency of the force itself.

Senator JOHNSON. Yes. Now, you have entered into various contracts with various private yards, have you not, since this contract was entered into?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. Will you state some of the figures at which you have entered into contracts for the construction of ships with private yards since that time; is it $180, $190, or $200, or what? I do not ask for detailed information.

Mr. PIEZ. Well, I am trying to think of some of the same type, so as to give you a comparative value.

Senator JOHNSON. Yes.

Mr. PIEZ. Somewhere between $190 and $195 per dead-weight ton. But that price must be readjusted to account for this last labor increase that was awarded by the Macy board. They will run somewhere between $195 and $200 per ton with the corrections.

Senator JOHNSON. Will it be a sum less than these ships will cost?

Mr. PIEZ. I think so; yes.

Senator JOHNSON. And approximately how much—$20 a ton?

Mr. PIEZ. Somewhere between $15 and $20 per ton, I should say.

Senator JOHNSON. Somewhere between $15 and $20 a ton?

Senator RANSDELL. Pardon me, but when you say "these ships," you mean these 50 ships, do you not?

Mr. PIEZ. Yes, but not the others.

Senator JOHNSON. Well, have you any method of comparison between the others—which I assume are those in addition to the first 50?

Senator RANSDELL. Yes; those in addition to the 50.

Senator JOHNSON (continued). Any method of comparison between those and any other contracts which you have made?

Mr. PIEZ. Well, I have not had time to do that. This is what I base that qualification on, Senator: That we have been proceeding gradually with an increasing production per month. We had reached during the month of November a production equivalent to about 84 ships per year. But we had in the beginning—in May—a production of not over seven ships per year. But that reduced production had to carry the overhead of a very big establishment.

Now, as we improve our production and get it up to where it ought to be, about 12 ships per month, the overhead charge will be very materially reduced. The fact that we have cut out overtime since the armistice is going to mean that the labor cost will be very materially reduced. Some builders have told me that it will save over $100,000 per hull.

Senator JOHNSON. What I am trying to get at is this: I am perfectly frank with you—whether the cost of building in the fashion in which we are building at Hog Island is greater than the cost of building under contracts for building ships with private contractors at private yards.

Mr. PIEZ. At this time, yes.

Senator JOHNSON. And you have on the ways at Hog Island how many ships at this time?

Mr. PIEZ. Fifty.

Senator JOHNSON. You have 50 on the ways at Hog Island, and you think those ought to be finished by the Government, do you?

Mr. PIEZ. Yes.

Senator JOHNSON. As I understand you, then, you think they ought to continue the construction of those ships?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. Would you have it continue with the Government taking over the yard, or have it continue in the way it is doing at present?

Mr. PIEZ. That is a question that has not been considered up to this time.

Senator JOHNSON. What is your opinion about that, if you are prepared to give it?

Mr. PIEZ. I do not think I am quite prepared to give you an absolute opinion on that. There are some very grave disadvantages in taking it over.

Senator JOHNSON. Do I understand from that that you have no opinion, or that you have an opinion but do not wish to express it?

Mr. PIEZ. I have an opinion, which I want to confirm.

Senator JOHNSON. Yes; I see.

Mr. PIEZ. I may say this, that in May, when Mr. Schwab and I were at Hog Island, Mr. Schwab put the responsibility of carrying out that contract fully on the American International Co. At that time we withdrew Admiral Bowles from detailed supervision of every process and ship construction solely for the purpose of concentrating responsibility where we thought it belonged.

Mr. Schwab told the International Co. at that time that he would give them until January 1 to show whether they would be competent to handle that proposition. About January 1 we are going to make a survey; in fact, we have already begun an examination into that very question you are asking about, and I do not want to anticipate——

Senator JOHNSON (interposing). And I do not wish to anticipate you, Mr. Piez, in that regard, of course.

Mr. PIEZ. Yes.

Senator JOHNSON. But I want to get plain the statement that you have just made. Admiral Bowles was the superintendent of ship construction there until July of this year, was he?

Mr. PIEZ. Until June.

Senator JOHNSON. Until June of this year. Then it was determined that the responsibility should be placed——

Mr. PIEZ. On our agents.

Senator JOHNSON. Upon the American International?

Mr. PIEZ. Yes.

Senator JOHNSON. And in June of this year the responsibility was wholly placed upon the American International?

Mr. PIEZ. Yes.

Senator JOHNSON. And that was to enable you to determine, in the six months succeeding, until the 1st day of January next, just exactly what they were doing and how they were doing it?

Mr. PIEZ. Yes, sir—without giving them any chance of saying that we restricted them or intruded upon them in any respect.

Senator JOHNSON. Yes. So that Admiral Bowles's functions in relation to the construction of ships ceased in July last?

Mr. PIEZ. No; they have ceased in this respect only: that he has no longer any right to determine whether they shall employ a man at $2.400 a year or $1,800.

We propose to judge them wholly by the results, and we do not propose to indicate to them hew they shall achieve those results, because, if we do that, we might just as well run the yard ourselves, and pay the fee.

Senator JOHNSON. Well, up to June you were running the yard?

Mr. PIEZ. Substantially. We were, perhaps, interfering more with the progress of the yard than we should; that was our conclusion.

Senator JOHNSON. Not only that, but up to June you were doing just exactly what you indicated just a moment ago; that is, you were running the yard on behalf of the Government and paying these gentlemen for their particular work?

Mr. PIEZ. Substantially that; we were running it more than we should have; without taking all of the responsibilities, we did interfere with the operations.

Senator JOHNSON. Since June you have changed in the manner in which you have indicated?

Mr. PIEZ. Yes.

Senator JOHNSON. What are Admiral Bowles's functions at the present time?

Mr. PIEZ. Well, they are the same functions as all of our district managers have everywhere, supervising the general operations of the yard, and determining whether, in a general sort of way, these

people are doing things that add to the cost, and whether they are moving in the right direction. He is also in detailed charge and control of all of the expenditures for plants, completion, and extension.

Senator JOHNSON. Is the plant completed?

Mr. PIEZ. Not yet; no.

Senator JOHNSON. When will it be completed?

Mr. PIEZ. Well, a new plant is never fully completed, in that sense; there is always some reason for small additions of a minor chara ter.

Senator JOHNSON. I do not mean such modifications or additions as may be necessary from contemporaneous work; but when, as a plant, as contemplated originally, will this plant be finished?

Mr. PIEZ. I suppose in another 60 days.

Senator JOHNSON. In another 60 days? Up to this date the cost of the plant has been approximately what?

Mr. PIEZ. Between $58,000,000 and $59,000,000, I think, our expenditures have been.

Senator JOHNSON. And up to the date of completion what will it be?

Mr. PIEZ. The cost is estimated at $63 300,000 or $63,400,000. I had a consultation with the Admiral some time ago, and I said that must represent the final cost. Of course, we can never absolutely adhere to the letter of such an instru tion as that. But the plant will have to be sub-tantially completed within that sum.

Senator JOHNSON. Oh, yes; we are speaking approximately, of course.

Mr. PIEZ. Yes.

Senator JOHNSON. Because I suppose that can not be told exactly. But approximately, then, within 60 days the plant will have been completed and the total cost will have been somewhere about $63,000,000?

Mr. PIEZ. Yes, sir:

Senator JOHNSON. You are familiar with the original estimate that was made, are you not?

Mr. PIEZ. Yes.

Senator JOHNSON. And that original estimate was what?

Mr. PIEZ. $21,000 000. Afterwards it was changed to $27,000,000, when they changed the price of ships.

Senator JOHNSON. So that the original estimate was $21,000,000, subsequently changed, when the price of ships was changed, to $27,000,000; and the estimated cost of completion now is $63,000,000?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. You are familiar with the contract, too, are you not?

Mr. PIEZ. Yes, sir.

Senator JOHNSON (continuing). In respect to the option that is accorded to the Government?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. And upon land which is owned by private individuals, this expenditure of $63,000,000 will have been made when you complete the plant, will it not?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. Then, you recall that you have the right of purchase at a fixed rate?

Mr. PIEZ. Yes, sir.

Senator LENROOT. May I interrupt a moment, Senator Johnson?

Senator JOHNSON. Yes.

Senator LENROOT. Under the contract that is only true, is it not, if 100 ships have been ordered?

Mr. PIEZ. We have ordered 180.

Senator LENROOT. Yes. I do not want to interrupt; but have you been advised by your counsel whether or not a cancellation of orders so as to bring the number below 100 would still authorize you to exercise this option of purchase?

The CHAIRMAN. It is 120, is it not?

Senator LENROOT. One hundred and eighty have been ordered and 50 are on the ways.

Mr. PIEZ. I am advised that there is a specific provision as to that in the termination clauses, on pages 8 and 9, in clause 9.

The CHAIRMAN. The contract originally called for 50 and 70, as I remember, making 120 originally, and then they added 60 more ships.

Senator VARDAMAN. I would like to ask Mr. Piez this question in this connection: Can you state to the committee what were the improvements to be made and the character of the improvements that are to cost something like $5,000,000?

Mr. PIEZ. I can not, Senator, at this time. I will be very glad to submit a detailed list of them. I had it, but I have so many figures to carry in mind that I can not charge myself with it, but I will be very glad to get that information.

Senator HARDING. You can probably get that from Mr. Stone, can you not?

Mr. PIEZ. Yes; and I have a statement prepared by Admiral Bowles which I approved. If I had that with me, I could give you the details. I shall be very glad to send for that and submit it to the committee.

But this is work that we are committed for, work that has been begun and work that was apparently essential to the completion of the contract.

(The statement referred to was subsequently submitted by Mr. Piez, and is printed in full in the hearing of January 2, 1919.)

Senator LENROOT. I would be glad, Mr. Piez, if you would point what provision it is in the contract that you think protects the Government, giving the line and page.

Mr. PIEZ. May I leave that to counsel?

Senator LENROOT. Yes, if you are not familiar with it.

Mr. PIEZ. Do you want to ask counsel about it now or later?

Senator LENROOT. I should like to have it closed up now, as it becomes rather important in considering the question of the cancellation of the contract.

Mr. PIEZ. I will be very glad to turn the question over to Mr. Cuthell.

Mr. CUTHELL. In my judgment, the contract specifically covers what shall be done in the event of a termination of the contract; that is, we have the right to terminate if they have not made a progress satis-

factory to us, for reasons which are within their control. In that event, we can go into the yard, take an appraisal——

Senator LENROOT. I understand that, but I am asking now if Congress may order the cancellation of these contracts, not through any failure upon the part of the agent or contractor, but as a matter of policy upon the part of the Government?

Mr. CUTHELL. Then that would not be a cancellation within the provisions of this contract, do you mean, Senator?

Senator LENROOT. Then the question I asked is whether your construction of the option-clause of this contract, which provides that this option may be exercised if the Government shall have ordered 100 ships, is that if cancellations shall have been made to reduce that number below 100 the Government can then exercise this option, assuming that there is no failure upon the part of the agent or that there has been a failure but it has been waived.

Mr. CUTHELL. That seems to me to be a different question from the one I was answering before.

Senator LENROOT. That is the one I was asking Mr. Piez.

Mr. CUTHELL. The case where there would be a termination for some reason other than the failure of the agent, of course, is not covered in the contract, and we would have to rely on negotiations for that.

Senator LENROOT. So that, in your opinion, if the Government does cancel the contract so that less than 100 ships are actually completed it would not have the right to exercise this option at all. Am I correct in that?

Mr. CUTHELL. That would be a cancellation other than for the reasons stated in the contract, and of course we would be proceeding under a condition that is not covered by it.

Senator LENROOT. So that there is no provision in the contract for the Government to acquire any of this real estate at all unless 100 ships or more are built?

Mr. CUTHELL. If it is canceled for some reason outside of the contract, no, sir.

Senator HARDING. Do any of these contracts provide for cancellation in case the war emergency passes?

Mr. CUTHELL. No, sir.

Mr. PIEZ. We have no cancellation clause in any of these contracts.

Senator JOHNSON. It is a long time since I have read the contract; I think it was in the middle of last summer, so I want to get perfectly plain in my mind what you say. Do I understand correctly that it is absolutely essential that we contract for 100 ships before we can exercise this option?

Mr. CUTHELL. No, sir; if we contracted for less than 100 ships, we were compelled to buy the land by the provisions of this contract. Perhaps that is what caused the confusion in the minds of the Senators.

Senator LENROOT. Well, I have not recently refreshed myself upon that, but I will be glad to have you point out the provision in the contract to which you refer.

Mr. CUTHELL. That if we order less than 100 ships, then, we must buy the land?

Senator LENROOT. Yes.

Senator JOHNSON. That was the reason of my question. I could get from what Senator Lenroot said that we could only buy the land in the case we ordered 100 ships. Was that your understanding, Senator Lenroot?

Senator LENROOT. Yes.

Mr. CUTHELL. The provision is on page 19 of the contract.

Senator LENROOT (examining paper). I think I have found it.

Mr. CUTHELL. It is section 21—"Additional vessels."

Senator LENROOT. It is fully covered, is it?

Mr. CUTHELL. Yes; very fully covered.

Senator LENROOT. The Government is required to purchase if it orders less than 100 ships?

Mr. CUTHELL. Yes.

Senator VARDAMAN. What was the time limit as to that? Was there any limit as to when those ships should be constructed?

Mr. PIEZ. Yes; the contract provides for delivery within a certain time.

Senator VARDAMAN. What was the date?

Mr. PIEZ. The date was thirteen and a half months after the signing of the contract—that was the original contract—that was afterwards modified by the contract signed May 7, to which is attached the schedule of deliveries, calling for delivery of 50 ships before January 1, 1919.

Senator JOHNSON. In that connection, did you not require to be delivered by November 11, 1918, 50 ships?

Mr. PIEZ. That was the original contract.

Senator JOHNSON. How many were delivered by November, 1918?

Mr. PIEZ. We changed that subsequently, Senator, because we were both guilty of some delay; we did not furnish material as it was demanded at first, and there was a readjustment of the schedule of deliveries made in May.

Senator JOHNSON. Of this year?

Mr. PIEZ. Yes; in the contract of May, 1918, which is for the second class of ships; that calls for 50 class A boats to be delivered by January 1, 1919. Of course, that would involve the delivery of a number of them in November; but it calls for the delivery of 50.

Senator CALDER. You will only have one by that time?

Mr. PIEZ. We will probably have three.

Senator CALDER. And there should have been 50?

Mr. PIEZ. There should have been 50 deliveries.

Senator JOHNSON. You abrogated the contract by which delivery of 50 ships was to be made by November 11, 1918?

Mr. PIEZ. We changed it, yes; we asked for modification on that delivery schedule, because we introduced the second type of ship; we disarranged the delivery dates on the first contract.

Senator JOHNSON. Was there any specific date, then, for the delivery of the ships fixed?

Mr. PIEZ. I think the only requirement is that they shall deliver 50 of these class A vessels by January 1, 1919.

Senator JOHNSON. Up to this time one has been delivered?

Mr. PIEZ. Yes.

Senator JOHNSON. And by the 1st of January next you think two more will be delivered?

Mr. PIEZ. Probably; yes.

Senator JOHNSON. You have 50 ships upon the ways at the present time, have you?

Mr. PIEZ. Yes.

Senator JOHNSON. What has been done in the way of construction, preparation for construction and the like, of the remainder that you have contracted for?

Mr. PIEZ. The work is well under way; the material is being fabricated. I can give you that in detail.

Of the 50 class A ships 1 ship is finished and delivered; 5 ships are in the outfitting basin; and 43 ships on the ways, making a total of 49 ships.

Senator VARDAMAN. When will those other ships be delivered?

Mr. PIEZ. I should say inside of three months, as they are progressing now.

Senator CALDER. All of the 43?

Mr. PIEZ. Yes.

Senator CALDER. Those on the ways will be launched and completed and delivered within three months from now, will they?

Mr. PIEZ. They ought to be.

Senator CALDER. They ought to be?

Mr. PIEZ. They are fairly well advanced, Senator.

Senator CALDER. Some of them will be delivered in three months, I have no doubt——

Mr. PIEZ (interposing). Well, I am assuming that we will make progress at the rate at which we have been making it. We have got the equivalent of 25 completed ships.

Senator VARDAMAN. What is the penalty for failure of the agent to comply with the requirement as to deliveries?

Mr. PIEZ. $300 a day, with a maximum of $14,000. There has been erected on these 49 ships 91,000 tons of steel, 55,000 tons of steel of fabricated erection in the yard. So that substantially all of the 146,000 tons of steel required for the first 50 vessels has been fabricated—I mean by that, punched and sheared and bent—or erected in the vessels.

The materials at purchase prices are as follows:

Thirty-three per cent installed on vessels, amounting to $13,530,000.

Fifty-six per cent on hand or en route to shipyard, $22,960 000.

Only 5 per cent is in process of manufacture; and 6 per cent has not yet been delivered from the steel mill.

Senator HARDING. This relates to the first 50 ships, does it?

Mr. PIEZ. The first 50 ships. And this will give you a fairly good summary of the present status.

Of the next order, covering 70 of class B ships, 7 keels have been laid; 3,000 tons of steel have been erected, 95,000 of steel has been fabricated, or in process of fabrication at these various fabricating plants; 67,000 tons of steel, in addition, have been rolled by the mills; and 123,000 tons of steel are still to be delivered by the steel mills, making a total of 288,000 tons for these 70 vessels, or substantially 57 per cent of the material has been delivered or fabricated, and only 43 per cent of that second order remains to be delivered.

Senator LENROOT. You gave 95,000 tons as having been fabricated on that second order?

Mr. PIEZ. Yes.

Senator LENROOT. And 67,000 tons of steel you gave as having been rolled?

Mr. PIEZ. Yes.

Senator LENROOT. And then you said 123,000 tons have still to be delivered?

Mr. PIEZ. Yes.

Senator LENROOT. What did you mean by that?

Mr. PIEZ. The steel to be delivered by the mills to the fabricating shops. The process is that the material is shipped by the mills to the shops that have undertaken the punching, shearing, and bending of these steel plates at angles. We call those fabricating shops. Then, after they are fabricated, they are shipped to Hog Island; there is very little fabrication done at Hog Island.

Now, out of the total 288,000 tons required for the class B ships, 3,000 tons have been erected; 95,000 tons are ready to be erected; 67,000 tons have been rolled at the mills and are either at the mills or being sent to the fabricating shops; and 123,000 tons of steel are still required to be delivered by the steel mills to complete this order.

Senator HARDING. In other words, that is unrolled?

Mr. PIEZ. That is unrolled.

Senator LENROOT. In case of cancellation, there will be substantially no loss on account of anything having been done as to that?

Mr. PIEZ. Substantially, no loss on the 43 per cent, so far as the steel is concerned.

Senator VARDAMAN. Just wherein has this company failed in carrying out its contract?

Mr. PIEZ. I beg your pardon; I do not understand.

Senator VARDAMAN. Can you state, so that I may understand it, just wherein this company has failed to meet the terms of its contract with the Government; have they been penalized for failure to deliver?

Mr. PIEZ. They can not be penalized for failure to deliver until the time expires, and then they would be assessed with a penalty to a maximum of $14,000.

Senator VARDAMAN. They have until the 1st of January next before any penalty can be imposed upon them?

Mr. PIEZ. Substantially. But we pay only the minimum fee on any of these vessels, until they have demonstrated their compliance with the contract.

Senator CALDER. Will this concern really not lose about $2,000,000 in profits that they otherwise would have made if their ships had been delivered on time—the minimum and the maximum profits?

Mr. PIEZ. I think that is it—I will look that up.

Senator CALDER. That is the difference between the two amounts?

Mr. PIEZ. It is about $2,675,000, the penalty for failure to deliver.

Senator JOHNSON. When you say "penalty," you mean they will not get that much money, or will get that much less?

Mr. PIEZ. Yes; it is a reduced fee, a loss to them—a loss of expectations.

Senator JOHNSON. Yes.

Senator CALDER. Is there any penalty due to the fact that it cost twice as much to build the plant as originally estimated?

Mr. PIEZ. There is a penalty, but all the penalties together, according to the contract, can not exceed $14,000 per ship; that is there is a minimum fee of $41,000 provided, no matter when they are delivered or what they cost.

Senator CALDER. There is no penalty on the plant, is there?

Mr. PIEZ. There is no penalty on the plant. I thought your question had reference to the ships.

The CHAIRMAN. Have you finished the table that you were reading from, Mr. Piez?

Mr. PIEZ. No; I have not.

As expressed in dollars, on the second order, covering the 50 class B ships, 20 per cent are on hand or en route to the shipyard representing $19,200,000; 22 per cent are in process of manufacture amounting to $21,120,000; and 58 per cent is the balance required to complete.

So that there could be cancellations there in value of substantially 58 per cent of the total value of the class B ships; but we stand committed by contracts with all the manufacturers for that material.

Senator HARDING. Well, just what do you mean by that? Will you give an illustration of it?

Mr. PIEZ. For instance, we have ordered all of the turbines for 7 ships; and we have contracted for engines of 6,000 horsepower for all of the ships; for the boilers, the piping, the propeller shafts, the propellers, and all of the deck machinery; practically all of the equipment for the ships has been contracted for.

So that, if we canceled to-day, we have got to settle with the subcontractors as well as with the American International Co. You see these ships were ordered last October, over a year ago, and the processes are pretty well advanced.

Senator HARDING. What percentage of advancement has been made in the supplies for these ships, such as boilers, etc.?

Mr. PIEZ. The amount paid, do you mean?

Senator HARDING. No; what percentage of reduction was there on what you call the supplies of a ship?

Mr. PIEZ. Well, apparently there is delivered and in process 42 per cent, according to this statement [indicating], as expressed in dollars. There is still required 58 per cent, but whether that is an absolute measure of the work that has been done in the shops I am not certain, because nothing but a careful investigation of each ship would reveal that. This [indicating] is only a general statement drawn from our statistical records, but it is substantially correct.

But it does not indicate to what extent we are committed and to what extent we would have to pay in case of cancellation. That is a matter of a very different sort.

In the 60 class A ships which were ordered in May last, 44,000 tons of steel have been fabricated or are in process of fabrication; 62,500 tons of steel have been rolled by the mills and shipped: that represents, respectively, 25 per cent and 37 per cent. And 64,500 tons of steel are still required on that order; that is, 38 per cent, expressed in dollars and covering all of the material required, both steel and machinery. Of this third order, 21 per cent of the material is on hand or en route to shipyards, representing a value of $11,340,000; 20 per cent is in process of manufacture, representing in

value $10,800,000, and 59 per cent, representing $31,860,000, is required to complete the order.

To give a summary for all the 180 ships, taking the materials at purchase prices, 35 per cent of the material has been received or is en route to shipyard, representing a value of $67,030,000, 18 per cent is in process of manufacture, amounting to $33,970,000, and 47 per cent is required to complete the order, amounting to $90,000,000.

Now, that gives you a fairly good picture of the state of materials there, the amount delivered and in process of delivery, and the amount still to be delivered.

But you must not extract from that the idea that you can cancel $90,000,000 worth of work without a substantial payment on account. Practically all of the materials which I have mentioned are under contract except certain miscellaneous work for the class B ships and the second lot of class A ships, amounting to something between $6,000,000 and $10,000,000.

The CHAIRMAN. I suggest that the tabulated statement from which you have given us those figures be inserted in the record at this point.

(The statement referred to is here printed in full, as follows:)

UNITED STATES SHIPPING BOARD,
EMERGENCY FLEET CORPORATION,
*Philadelphia, December 18, 1918.*

MEMORANDUM OF THE SITUATION OF THE AMERICAN INTERNATIONAL SHIPBUILDING CORPORATION.

As to production, the situation on each of the principal groups of ships is as follows:

The proportional completion of each ship under construction is shown on Exhibit B, and the total of work done on assembled ships and those partially assembled is equivalent to that of 25 completed vessels.

*50 "A" ships.*

1 ships finished and delivered.
5 ships in outfitting basin.
43 ships on ways.

49 ships.

| | | Per cent. |
|---|---|---|
| 91,000 | tons of steel erected | 62 |
| 55,000 | tons of steel fabricated | 38 |
| 146,000 | tons | 100 |

Materials at purchase prices:

| Per cent. | | Value. |
|---|---|---|
| 33 | installed on vessels | $13,530,000 |
| 56 | on hand or en route to shipyard | 22,960,000 |
| 5 | in process of manufacture | 2,050,000 |
| 6 | balance required to complete | 2,460,000 |
| 100 | | 41,000,000 |

*70 "B" ships.*

7 keels laid.

| | | Per cent. |
|---|---|---|
| 3,000 | tons of steel erected | 1 |
| 95,000 | tons of steel fabricated or in process | 33 |
| 67,000 | tons of steel rolled | 23 |
| 123,000 | tons of steel required to complete | 43 |
| 288,000 | | 100 |

Materials at purchase prices:

| Per cent. | | Value. |
|---|---|---|
| 20 | on hand or en route to shipyard | $19,200,000 |
| 22 | in process of manufacture | 21,120,000 |
| 58 | balance required to complete | 55,680,000 |
| 100 | | 96,000,000 |

*Sixty "A" ships.*

| | | Per cent. |
|---|---|---|
| 44,000 | tons of steel fabricated or in process | 25 |
| 62,500 | tons of steel rolled | 37 |
| 64,500 | tons of steel required to complete | 38 |
| 171,000 | | 100 |

Materials at purchase prices:

| Per cent. | | Value. |
|---|---|---|
| 21 | on hand or en route to shipyard | $11,340,000 |
| 20 | in process of manufacture | 10,800,000 |
| 59 | balance required to complete | 31,860,000 |
| 100 | | 54,000,000 |

*Summary—180 ships.*

Materials at purchase prices:

| Per cent. | | Value. |
|---|---|---|
| 35 | received en route to shipyard | $67,030,000 |
| 18 | in process of manufacture | 33,970,000 |
| 47 | required to complete | 90,000,000 |
| 100 | | 191,000,000 |

Practically all of the materials noted above are under contract, except certain miscellaneous work for the "B" ships and the second lot of "A" ships, amounting to something between $6,000,000 and $10,000,000.

Senator HARDING. Do you mean to say that we shall have to pay for damage to the contractor for steel or boilers or engines that are not yet touched?

Mr. PIEZ. Well, the raw materials may be delivered for them and the castings may be made; the special appliances may be purchased or may be on order.

We have recently made some cancellations, Senator, and the ramifications of responsibility that those cancellations lead you into are tremendous. I am not prepared to say just what it would represent to cancel them.

Senator HARDING. Is the contractor for engines and boilers working at a fixed price for his product?

Mr. PIEZ. Usually a lump-sum figure.

Senator HARDING. So that if he goes on he charges you the maximum war-time prices, no matter what steel is costing to-day, or will cost to-morrow or next week; he goes on and charges you the same?

Mr. PIEZ. Substantially that, because he stands committeed for that and probably has made all of his purchases on that basis. We can get a reduction if steel goes down, on the undelivered portions of the steel, because that has been the practice in the steel business.

Senator HARDING. That would not avail anything in the case of boilers of engines, however?

Mr. PIEZ. Not in the case of boilers and engines; no, sir.

Senator LENROOT. In presenting these figures of material that is fabricated and rolled, and these turbine engines, and so on, have all of these materials been allocated to different ships?

Mr. PIEZ. Substantially. You see, 110 ships are practically the same.

Senator LENROOT. Well, in the case of turbine engines, under the statement that you made, there might be 50 per cent uncompleted, but that would not necessarily mean that there were engines for 180 ships 50 per cent completed.

Mr. PIEZ. No.

Senator LENROOT. You might have that percentage completed, and yet the entire amount might be utilized in the ships you would complete.

Mr. PIEZ. Well, it is very likely to be the other way.

Senator LENROOT. You have not any definite information on that?

Mr. PIEZ. No; I have not any definite information, because we have not attempted an examination of that kind and have not made a survey showing what it would involve.

Senator JOHNSON. Who buys and contracts for the fabricated material for these ships?

Mr. PIEZ. The American International, under our approval.

Senator JOHNSON. Are the contracts for the fabricated material in the name of the American International or in the name of the Emergency Fleet Corporation?

Mr. PIEZ. I think they are all purchased by the Emergency Fleet Corporation, through the American International as agents. Is that true, Mr. Cuthell?

Mr. CUTHELL. Yes.

Senator JOHNSON. That is, the contracts then are——

Mr. PIEZ (interposing). Our contracts.

Senator JOHNSON. They are your contracts?

Mr. PIEZ. Yes.

Senator JOHNSON. You buy all of the material?

Mr. PIEZ. Yes.

Senator JOHNSON. Is that true as to engines?

Mr. PIEZ. Yes.

Senator JOHNSON. Is that true of all of the material that goes into the ships?

Mr. PIEZ. Practically all of the material that goes into the ships, yes; they act wholly as our agents.

Senator JOHNSON. What proportion of the cost of the ship does the fabricated material and the other material that you purchase bear to the total cost?

Mr. PIEZ. That I have not in mind now. I can give you that information later; I can supply that after looking up the records. You want to know what the total percentage of the fabricated steel and the machinery and the other miscellaneous equipment is——

Senator JOHNSON (interposing). All of which you order and pay for.

Mr. PIEZ. Yes.

Senator JOHNSON. The liability to the contractor for all of this material that goes into the ships is your liability, is it not?

Mr. PIEZ. It is our liability; yes, sir.

Senator JOHNSON. Who employs the labor used in this shipyard?

Mr. PIEZ. The American International.

Senator JOHNSON. Has it not been done through governmental agencies?

Mr. PIEZ. Not in the early processes; no, sir.

Senator JOHNSON. Well, since you have been in charge is that not the fact?

Mr. PIEZ. Do you refer now to the Federal Employment Bureau in Washington?

Senator JOHNSON. Not only to that, but to those agencies through which the Shipping Board got men into the shipping industry: were you not doing that?

Mr. PIEZ. Well, we had a general campaign or propaganda to bring them into the shipyards.

Senator JOHNSON. Yes; there was a tremendous propaganda and campaign on.

Mr. PIEZ. Yes.

Senator JOHNSON. So that you really obtained the labor for shipyards, did you not?

Mr. PIEZ. Well, they selected it; all we did was to turn it toward the shipyards that employed it.

Senator JOHNSON. Well, all the necessary labor was in reality provided by the Government, wasn't it?

Mr. PIEZ. Not in the early processes of construction.

Senator JOHNSON. That may be—but it was during its subsequent processes, at least, was it not?

Mr. PIEZ. During the processes of ship construction; yes. But may I say that all we did was to arouse the enthusiasm of the men in ship construction and point it out as a patriotic duty of men to go into it and enlist their sympathy with the enterprise, and indicate the opportunity that existed for employment in the various operations. That was our function.

Senator JOHNSON. I thought you had done much more than that, and done it very well, Mr. Piez. I thought it was due to your efforts or the efforts of your board and the efforts that were made throughout the entire country that you were able to obtain the labor in the various shipyards of the country.

Mr. PIEZ. Well, of course we had a very broad campaign to bring that about. We did appeal to the patriotism of the men and pointed out the opportunities.

Senator JOHNSON. You not only appealed to the patriotism of the men in that particular line, but you appealed to the patriotism of the country to furnish the men for that particular line?

Mr. PIEZ. Yes; we did all of that.

Senator JOHNSON. And you obtained it, did you not?

Mr. PIEZ. Yes.

Senator JOHNSON. All of that was done in order that the program might be completed, was it not?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. And without your efforts in that regard it practically never would have been completed? That is, not within any reasonable time?

Mr. PIEZ. We flattered ourselves that our efforts were productive of very good results.

Senator JOHNSON. So that, if you will follow me in a brief recapitulation, the Government paid all of the bills at this shipyard, did it not?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. The Government, secondly, contracted and assumed the liability for all of the material in these ships?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. The Government, thirdly, by a tremendous campaign and propaganda, furnished the labor for the building of the ships?

Mr. PIEZ. Well, I think I assent to that in a limited sort of way.

Senator JOHNSON. Yes. So that the Government has certainly done its part—I will modify what was originally in my mind to say—has it not?

Mr. PIEZ. I think so; yes, sir.

Senator JOHNSON. And we will pay the contracting parties a minimum fee of $8,910,000?

Mr. PIEZ. There are, in addition to those three functions, of course, many additional functions that the agent does perform.

Senator JOHNSON. Yes. I might add, too, that the Government has paid for the construction of the yard where subcontractors were used a fee to subcontractors as well?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. And those fees aggregated, according to the statement that was handed in here a short time ago——

Mr. PIEZ (interposing). $600.000, perhaps; 5 per cent on $12.000,000.

Senator JOHNSON. Yes; something of that sort. Now, the first ship was delivered to you when?

Mr. PIEZ. December 4 or 5.

Senator JOHNSON. December 4?

Mr. PIEZ. Somewhere around that.

Senator JOHNSON. It was launched when?

Mr. PIEZ. August 4.

Senator JOHNSON. What is the average time between the launching of a ship and its delivery?

Mr. PIEZ. From 52 to 54 days, for all of our ships.

Senator JOHNSON. Fifty-one days?

Mr. PIEZ. Fifty-two to fifty-four days; that is about it.

Senator JOHNSON. That is the average time?

Mr. PIEZ. Yes.

Senator JOHNSON. This required much more than the average time, did it?

Mr. PIEZ. One hundred and twenty days.

Senator JOHNSON. A little over double the average time in its delivery?

Mr. PIEZ. Yes; of course, it was the first of the lot.

Senator JOHNSON. Yes. Ought it to have been launched when it was?

Mr. PIEZ. No, sir.

Senator JOHNSON. On the occasion of its launching, there was a tremendous celebration and a propaganda—I do not mean that invidiously at all.

Mr. PIEZ. No; I understand.

Senator JOHNSON. But a propaganda as to the tremendous success—ahead of the schedule at the Hog Island yard, etc. Do you recall that?

Mr. PIEZ. I recall the propaganda but I do not recall the state-[illegible] that it was ahead of the promised delivery—was that your [illegible]

Senator JOHNSON. Yes; ahead of the schedule, etc.

Mr. PIEZ. I do not recall that. Of course, we did make that the occasion of a great patriotic appeal, as we very rightly decided to do.

Senator JOHNSON. I do not question that at all. It was a very worthy celebration too, was it not?

Mr. PIEZ. I have not the figures in mind.

Senator JOHNSON. Can you approximate what it cost?

Mr. PIEZ. No.

Senator JOHNSON (continuing). That celebration showing what Hog Island had done?

Mr. PIEZ. No; I can not.

Senator JOHNSON. And the one ship was launched at that time. What was the difficulty, please?

Mr. PIEZ. It was launched prematurely, because, as I remember it, only about 70 or 75 per cent of the rivets were driven that might have been driven, and the tanks had not been tested.

Senator JOHNSON. There was difficulty in the riveting of the ship, was there not?

Mr. PIEZ. Well, there was difficulty in the rate of riveting, rather than the character of riveting.

Senator JOHNSON. Do you know whether any portion of the ship had to be reriveted?

Mr. PIEZ. I am not certain as to that. Rivets have got to be drawn and reriveted in every ship, practically, because they are all inspected and tested. Just what percentage of the rivets had to be redriven there I do not know, but the rumor that 75 per cent of the rivets had to be redriven—I presume some such rumor reached you—is very wide of the mark.

Senator JOHNSON. No; that did not reach me. I was told that a portion of the ship had to be reriveted; I do not know anything about it.

Mr. PIEZ. Well, a number of the rivets had to be redriven, because the rivets had not been driven when the ship was launched; a very much larger percentage had to be driven after the ship was in the wet basin.

Senator JOHNSON. Why was it launched if it had not been riveted?

Mr. PIEZ. Well, the date was set——

Senator JOHNSON (interposing). That is it exactly; and the propaganda was on; is not that the fact? And then they had to make good by launching a ship that ought not to have been launched; and they told the country of the tremendous strides and the wondrous work of Hog Island—with a ship that ought never to have been put into the water.

Mr. PIEZ. It was prematurely launched by about two weeks.

Senator JOHNSON. Water came into it after it was launched, did it not?

Mr. PIEZ. Not that I know of.

Senator JOHNSON. Did you look into it sufficiently to see the defects?

Mr. PIEZ. I have been on board the *Quisconck* several times.

Senator JOHNSON. What I am trying to get at—if you can not personally tell the details, I will not trouble you.

Mr. PIEZ. No.

Senator JOHNSON. If you can, I will be very glad to have you do so.

Mr. PIEZ. I could not tell you as to the defects. I prefer, if you want that information, to get it for you exactly.

Senator JOHNSON. Surely; and I do not want to trouble you with the question if you are not personally familiar with the facts in relation to it.

Mr. PIEZ. You see my contact there is rather indirect, because I depend very largely on Admiral Bowles in the handling of that.

Senator JOHNSON. Well, did Admiral Bowles have anything to do with the launching of the ship?

Mr. PIEZ. I presume the admiral assented to it; yes.

Senator JOHNSON. Well, did Admiral Bowles fix the date?

Mr. PIEZ. That I am not certain about. I presume he agreed to the day in advance.

Senator JOHNSON. His functions, however, in connection with the supervision of the ships had ceased in June?

Mr. PIEZ. Well, but he exercised the function of determining when a ship shall be launched; and he still controls that. We do that in every yard, because there has been a tendency to launch prematurely, because certain payments are due on the laying of the new keels. So we had to exercise control over that, not only at Hog Island, but everywhere.

Senator JOHNSON. Well, do you know whether control was exercised over the launching of this particular ship?

Mr. PIEZ. That launching date was apparently agreed on by our representatives and the American International Co. perhaps a month ahead, with the expectation that the progress at that time would justify the launching; and then, by reason of the arrangements for the celebration having been made——

Senator VARDAMAN (interposing). Was there any loss to the Government occasioned by the premature launching of the ship?

Mr. PIEZ. It involved chiefly a loss of time, Senator.

Senator VARDAMAN. Well, that is a loss of money, is it not?

Mr. PIEZ. It can be translated into that; yes.

Senator JOHNSON. When you say "loss of time," what do you mean—for workmen or for delivery of the ship?

Mr. PIEZ. No; the work of riveting proceeds more slowly in a wet basin, because it interferes, in part, with the installation of the machinery, and the installation of the machinery interferes in part with the driving of the rivets.

Senator JOHNSON. Were you present at the installation of the machinery?

Mr. PIEZ. I have been down there several times to see the ship since it has been in the wet basin.

Senator JOHNSON. Why?

Mr. PIEZ. I make periodic visits to Hog Island and to other shipyards simply to keep myself informed.

Senator JOHNSON. Did you have any particular reason for going to see this particular ship?

Mr. PIEZ. No.

Senator JOHNSON. When was it accepted by Lloyd's?

Mr. PIEZ. It was accepted by Lloyd's within, I think, two or three days.

Senator JOHNSON. Just two or three days ago?

Mr. PIEZ. Yes.

Senator JOHNSON. So that its acceptance by Lloyd's occurred 50 or 60 days after the ordinary time that a ship launched would be accepted, did it not?

Mr. PIEZ. Yes.

Senator JOHNSON. When was it accepted by the American Bureau of Shipping?

Mr. PIEZ. Simultaneously, I think. They act in cooperation.

Senator JOHNSON. Do they act together in accepting now?

Mr. PIEZ. Substantially they act together.

Senator JOHNSON. So that acceptance by one is acceptance by the other?

Mr. PIEZ. No; they are accepted independently.

Senator JOHNSON. Through the same inspection?

Mr. PIEZ. No; through different sets of inspection, but I think they consult together, and they are accepted concurrently, I think.

Senator JOHNSON. That is all I desire for the present, Mr. Chairman.

The CHAIRMAN. If there are no other questions to be asked Mr. Piez we can now hear Mr. Schwab.

Senator CALDER. I want to ask Mr. Piez a question: A great many of the shipping men have been to see me about the type and size and construction of our ships. I would like to ask you this question: Has the Shipping Board taken under advisement the question of whether the ships under contract, as to size, type, and construction, are best suited to enable this country to compete with other nations in the shipping trade?

Mr. PIEZ. Yes.

Senator CALDER. You think they are?

Mr. PIEZ. Mr. Rosseter is doing a very thorough and complete job in that respect; and we have all along been in thorough cooperation with him to make such modifications in ships as will, perhaps, render them more useful in certain lines of trade.

Senator CALDER. I have heard the question raised as to some of these cargo ships built at Hog Island that in speed they can make and the general type and character of the vessel they can not fully compete with the ships England is building now.

Mr. PIEZ. I would not say that; that is a very good type of ship. It is a double-decked ship; it has 3,000 horsepower; it is larger than the average ships, and I think altogether it is a very desirable ship.

Senator CALDER. Well, these transportation men that talked to me about it are very concerned about it. I presume they have talked to you.

Mr. PIEZ. Of course there is needless allowance in certain quarters. We have had to sacrifice a little weight in that ship on account of the design. We attempted to use the standard design of ships, but had to use ships that are different, so that the ship is a little heavier than corresponding standard ships. But so far as its cargo-carrying space and power ace concerned, I think it is a very good ship.

Senator CALDER. They tell me that England has substantially abondoned this size of ship.

Mr. PIEZ. No; this is the 7,500-ton ship; it is a very desirable type.

Senator CALDER. And the Shipping Board is considering all these things now, is it?

Mr. PIEZ. Yes; they are very conscious of that; and Mr. Rosseter, who has had great experience in shipping, has suggested modifications.

When the armistice was declared we immediately discarded all the military requirements, such as the gun platforms, the magazines, and other appliances that were put in to enable the ship to defend itself against attack by a submarine. That had constituted a very considerable burden to our ships. The gun platforms are raised somewhat on the bow and stern, and interfere somewhat with vision at those points; and they add 65 or 70 tons of structural steel to the weight of the vessel.

Certain criticisms have been directed against our ships because they appeared to be too heavy in the matter of steel in relation to cargo carrying capacity. A statement was made to Senator Fletcher, the chairman of the committee, some time ago, in connection with that, but I have since ascertained that England expresses the weight of her ships in long tons, and we express ours in short tons; so that accounts for a difference of 12 per cent. Some of these critics are not mindful as to the difference of terms that are applied.

Senator CALDER. Have you given any testimony this morning on the wooden-ship program?

Mr. PIEZ. Not yet; I have not been asked about it.

Senator CALDER. I would like you to tell how many wooden ships have been contracted for by the Shipping Board.

Mr. PIEZ. We have contracted for 700 of them, and for about 28 or 30 composite ships, which have steel scantlings and wooden planking.

Senator CALDER. How many wooden ships have been completed and turned over to operation?

Mr. PIEZ. We have covered that rather fully in this report [indicating].

Senator CALDER. I just wanted it stated approximately for the record.

Mr. PIEZ. This statement [indicating] is made as of October 31, I think.

Ninety-two were delivered by October 31; 42 were finished and awaiting crews for the trial trips; that is, 134 finished. Then 133 had been launched and were at the installation yards being fitted out, and I think about 169 were on the ways.

Senator CALDER. You have canceled a number of those contracts, have you not?

Mr. PIEZ. Yes; we have canceled 160; that is, we have suspended operations on 160, and we are proceeding with the cancellation now.

Senator VARDAMAN. Have they contracts that were made for the construction of the fabricated ships that is being built at Hog Island?

Mr. PIEZ. No; many of the ships are on the lump-sum contract basis and others are on a cost-plus a fee basis. I recall several of

the contracts, and the fees range somewhere between $30,000 and $40,000 per hull.

Senator VARDAMAN. What provision do you make where wooden ships have been ordered and the material ordered or is in course of preparation or on the way to the shipyard?

Mr. PIEZ. Do you mean so far as cancellation is concerned?

Senator VARDAMAN. Yes.

Mr. PIEZ. We attempted to cancel no ships on which the keels have been laid.

Senator VARDAMAN. Well, did you cancel any orders for ships that the material had been ordered for?

Mr. PIEZ. Yes, many. I have given in this report [indicating] a complete statement as to our method of procedure in cancellations.

Senator VARDAMAN. Well, we have not had an opportunity to read that report yet.

Mr. PIEZ. No.

Senator CALDER. Mr. Piez, to what date did you contract——

The CHAIRMAN (interposing). Will you let him finish that statement. Senator, before you ask him any question?

Senator CALDER. Yes; certainly.

Mr. PIEZ. We are following very largely the rules laid down by the Army in the matter of cancellations; and we are giving consideration to the commitments the contractor is under for materials, both for yard-construction work, where we have authorized it, and for ship construction; for all of his labor and for overhead—fixing a limit of 10 per cent; that is, 10 per cent of the actual work done, which would represent, of course, a portion of the total profits, assuming that the total profit would not be in excess of 10 per cent. We have set up a separate division, which we call the "Division of Cancellation and Salvage," and they proceed as follows:

They ask for a statement of claims by the contractor, and then send through our district officers for a verification of those statements by an actual survey of the material on the ground or in the ship.

When that verification comes in, if it accords with the claims submitted, the determination is then made as to whether we shall proceed to cancel them, having in the first place suspended operations, or whether we shall proceed with the work and complete it.

The measure that the board has fixed is this: That if hulls can be canceled at a cost not to exceed $200,000 a hull they shall be canceled, but if the cost of cancellation is in excess of that we will proceed to complete them. That is for the hull construction only.

In the case of completed ships the board has fixed its limit——

Senator HARDING (interposing). Excuse me, but does that mean a hull of any size?

Mr. PIEZ. No; I am speaking entirely of the wooden ships, which are all of substantially 3,500 tons.

In the case of the complete ship—some of our contractors have contracts for complete vessels, including the installation and furnishing of the machinery—the board has fixed $300 000 as a limit, so that if we can effect cancellation within the $300,000 we can proceed to cancel and then recover whatever we can in the way of salvage, and then, if we can not cancel, we proceed with the work.

Now, the reason that the board proceeded with that number of suspensions and cancellations is this: Apparently the survey indicates that we have use for about 350 wooden vessels in our own trades. We have a very large output of vessels of almost similar size, in steel, from the Lakes. Those vessels are now running 4,200 dead-weight tons. The use to which small vessels can be put, irrespective of what material they are constructed of, is very important, because they must be devoted to short hauls, so that the amount of fuel they will have to carry is not too great in proportion to the carrying capacity of the ship.

The Shipping Board, through its experts, developed that we would have a need for about 350 for use in the coastwise trade and in the West Indian and Hawaiian trades. But, in addition to that, there was probably the sale of 200 ships; and if we canceled 160 ships, even at such a cost as their resolutions indicated, that we would best conserve the interest of the Government by doing so. That was the general——

The CHAIRMAN (interposing). How many ships are being built on the Great Lakes?

Mr. PIEZ. I think something like 400 are under order, both requisition and contract.

The CHAIRMAN. Were any of those contracts canceled?

Mr. PIEZ. No; that is a very desirable ship, on this account, that a great many of them are oil burning. They have a steaming radius of somewhere between 7,000 and 8,000 miles. They have a very much larger cargo-carrying space than the wooden ships.

The CHAIRMAN. Can you get those out through the Welland Canal?

Mr. PIEZ. Yes; and the size is limited by the size of the locks in the Welland Canal.

Senator RANSDELL. Does the use of oil enable a ship to carry much more freight?

Mr. PIEZ. Yes.

Senator RANSDELL. The space used in storing oil is very much less, then, than that in storing coal?

Mr. PIEZ. Yes; and oil can usually be stored in a tank.

Senator RANSDELL. Constructed at the front——

Mr. PIEZ. No; constructed between the bottom and the tank top.

I want to say that we have made cancellations in steel ships as well. We canceled the contracts of the entire Alameda yards, the Liberty yards. That involved something like $20,000,000 for the yards and $40,000,000 for the construction of passenger ships or troop ships. We canceled something like 20 large steel vessels in addition; we have canceled about 100 wood barges; we have suspended operations on about 90 tugs—ocean-going tugs. So that we have proceeded with a very considerable cancellation—

Senator VARDAMAN (interposing). What did that cost the Government to cancel those contracts?

Mr. PIEZ. I am unable to say just what, because what we have done is judged by the possibilities, and we have selected those contracts that could be canceled at the least expense.

Senator HARDING. Would it be possible, Mr. Piez, in view of the situation in the Great Lakes yards, to cancel the contracts for smaller vessels and turn that material into other cargo carriers?

Mr. PIEZ. Not without a very considerable cost. We have proceeded to build vessels that should be cut in two.

Senator HARDING. Could this material be transferred to yards that would construct a larger vessel?

Mr. PIEZ. No; because the vessels are of a small size, and the scantlings, frames, are, therefore, of a smaller size than ordinarily is prescribed by Lloyd's. Then the plates are thinner, and they would not be available.

Senator HARDING. If you were going to build up a merchant marine, you would not build many 4,000-ton ships, would you?

Mr. PIEZ. No; but you would require a limited number; and I think if we open up the doors to foreign demands we could probably sell them at cost or a little above.

Senator HARDING. Are you selling the ships you have sold at a profit?

Mr. PIEZ. We have not sold any yet. We are trying to sell the wooden ships and get back the cost. I think it would be to our advantage to sell below cost. We have tried for the past three weeks——

Senator HARDING (interposing). May I ask you why we should sell our wooden ships below cost if we need ships?

Mr. PIEZ. We do not need, as our shipping men have indicated, more than 350 out of the lot; that is, we can not profitably employ more than 350 out of the lot of 700 that we are under contract for. When I say "profitably" I mean we are judging the value of a ship wholly under these competitive conditions that we will run into. A wooden ship is admittedly heavier than a steel ship of the same carrying tonnage, and on that ground is less efficient; it has less cargo-carrying capacity and very much more gross tonnage.

Senator CALDER. In other words, the wooden ship was an emergency ship?

Mr. PIEZ. It was essentially an emergency ship, and it was helpful in certain trades, in releasing certain steel ships for certain trans-Atlantic service.

Senator CALDER. How late did you contract for wooden cargo ships?

Mr. PIEZ. I am not prepared to say; I think perhaps not later than August; I do not think we have placed any contracts beyond that.

Senator CALDER. I heard that you had contracted for 35 in October.

Mr. PIEZ. Well, you should bear this in mind, that while we might commit ourselves for a contract in July, the actual contract might not be drawn, and probably is not, until October. There were no commitments for wooden ships in October; the contracts were listed; it was simply a reaffirment of commitments made very much earlier; we would tell a man to go ahead and build four more, because he had four ways in danger of lying idle.

The board has proceeded on the theory that during the emergency it was not justified in keeping idle the shipbuilding facilities that existed, so we have been farming out our contracts for wooden ships as the facilities in the shipyards became idle or were in danger of becoming idle. That has been the theory upon which we proceeded.

But most of these commitments were made before I came with the Fleet Corporation. I think the contracts we have made since have numbered something like 270 or thereabouts.

We created many facilities at that time. The facilities did become idle, and it would have been a brave man, indeed, that would have stopped building ships of any character even three or four months ago. I think we will all agree to that.

Senator CALDER. Well, I do not believe that ships that I saw were valueless——

Mr. PIEZ (interposing). Well, they were not valueless, and if the war had not stopped they would have been quite valuable. What I want to do is to project you gentlemen into the conditions as they existed last year. I appeared before this committee last year, with a chart indicating the submarine sinkings, and what we would have to produce to make the losses good, and I think all the members of the committee who were here at that time were aghast at the prospect.

Now, what we want to do is to project ourselves back into the time when the Germans were sinking in between 700,000 and 900,000 deadweight tons a month, and the world at large was producing less than 200,000 tons a month. Now, that is the period during which Hog Island was being built. That was in May.

Senator LENROOT. You do not mean last May, do you?

Mr. PIEZ. This was during June, July, and August.

Senator LENROOT. Of this year?

Mr. PIEZ. No; last year; 1917. But up to June of this year the sinkings amounted to about 450,000 tons——

Senator LENROOT (interposing). I wanted to correct you. You said last May, but you meant a year ago last May?

Mr. PIEZ. Yes. The program was developed, because we needed ships—anything that would float and propel itself. And I want you gentlemen to understand that we had no easy task to define our policies—we had to recognize our facilities and use the facilities that we had.

The CHAIRMAN. And this committee was urging you to build ships and to do everything you could in order to build ships?

Mr. PIEZ. Yes, sir; and I want you gentlemen to realize the burden we were under in the creation of these facilities. And we do not want to say that it is a pity that the war stopped when it did, thus checking and stopping the use of the facilities we created; but neither do we want to get into a position where we are judging a period of six or eight months ago by the conditions that exist to-day. I think it is only just that that statement be made.

The CHAIRMAN. Is that all, Mr. Piez?

Senator LENROOT. I have some questions that I desire to ask Mr. Piez, Mr. Chairman; but it is half past 1 o'clock, and I desire to be on the floor of the Senate during the consideration of the amendments to the revenue bill, and I think other members of the committee also desire to be on the floor. I, therefore, suggest that we adjourn now until to-morrow morning.

The CHAIRMAN. I will say to the committe that Mr. Schwab is here and is anaxious to return to New York to-day. Could we not hear Mr. Schwab to-day? I think, perhaps, his statement would not be very long. I would like to accommodate him if we can.

Senator LENROOT. I have no objection to that. How long would it take you, Mr. Schwab?

Senator JOHNSON. Mr. Chairman, I think it would be impracticable to finish the hearing to-day. If I had had any idea of what was to be taken up I should have been prepared in advance; but until I came here this morning I did not know these gentlemen were to be here, and I did not know the object of the meeting at all; and I presume that is the situation in which my colleagues find themselves as well.

The CHAIRMAN. The notice of the meeting was sent out two days ago. Besides, it is the regular meeting day established by the committee.

Senator VARDAMAN. Mr. Chairman, I am somewhat in the attitude of Senator Johnson about this matter. Why not postpone further hearings until after the holidays, and let us take it up immediately then, and in the meantime we will have an opportunity to read these reports?

Senator JOHNSON. An important Governmental policy is involved, which will be determined after the 1st of January, and if we postpone the hearing until then we will then be better informed with regard to it.

Senator VARDAMAN. I think it can wait.

Senator RANSDELL. I think we ought to continue the hearing, but I have no idea what Mr. Schwab wants to say. I suggest that we hear him to-day, in order that he may get away, and then we can finish with Mr. Piez's testimony later on.

Mr. SCHWAB. My testimony would be of such a general character that I think 15 minutes would suffice for me to give it.

The CHAIRMAN. Suppose we hear Mr. Schwab now, then.

Senator VARDAMAN. I suggest that that be on the condition that it be only 15 minutes. Not that Mr. Schwab will not be very interesting, but this is the way I feel about it, Mr. Chairman:

I think, in that connection, that Mr. Schwab is a very vital witness. I assume that this hearing is to give the Committee on Commerce some information which will enable it to declare to the Senate some policy: and I am infinitely more concerned in knowing about these contracts, and the result of cancellations, and fixing a policy relating to the operations of the Shipping Board and the Emergency Fleet Corporation, than I am about any specific enterprise coming within its operations.

I would like to hear Mr. Schwab at length on this subject; and if I am going to get all the light that he can throw on the subject in 15 minutes, then he is going to use his time much better than I could mine.

Mr. SCHWAB. Mr. Chairman, I will say to you that it will suit me better to return here after the first of the year than at any other time: and I will attend at any time the committee wants me to do so.

The CHAIRMAN. Is it the sense of the committee that we adjourn the hearing until after the 1st of January?

Senator HARDING. I am entirely agreeable to that; I want to read these reports and study them.

Senator LENROOT. May I suggest that it would be very helpful to this committee, I think, if Mr. Piez could secure even a partial survey of this material for which commitments have been made, as to what percentage of that could be utilized in the completion of a lesser number of ships than that for which it was intended.

Mr. PIEZ. I will do my best, Senator.

Senator LENROOT. I understand that.

Mr. PIEZ. We have not had much time for preparation for this hearing either.

Senator HARDING. Well, in getting up that information, is there any way to approximate the salvage on that material? Did you intend that to be included in your request, Senator Lenroot? In other words, if there is $100,000 worth of material in a shipyard for ships not yet begun, I want to know the salvage value of that material if the contract is cancelled—how much can it be sold for, to Mr. Schwab, for example, as an independent builder on his own account, after we have cancelled the contracts for the Government? Is there any way to get an approximation as to those things?

Mr. PIEZ. I will do my best, Senator. It is rather a difficult task you are putting up to us.

The CHAIRMAN. Before we adjourn, Mr. Piez, I will ask you to give a brief description of those two panoramic photographs that you have had laid out on the committee table.

Mr. PIEZ. The first of these pictures is a panoramic view of Hog Island, from the ferry house, taken on November 20, 1917, and the second is a panoramic view of the island, showing the entire shipbuilding plant, taken November 26, 1918; it is a wonderfully comprehensive view of the entire yard.

The CHAIRMAN. The pictures will be left here for the use of the committee. It is impossible to put them in the record; hence we are compelled to ask questions about what they show. I wish the committee to remain for a brief executive session.

The committee will adjourn subject to call after the 1st of January next.

(Whereupon, at 1.35 o'clock p. m., the committee proceeded to the consideration of executive business, and at 1.55 o'clock p. m., adjourned to meet subject to the call of the chairman.)

# UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION

## HEARING

BEFORE THE

## COMMITTEE ON COMMERCE
## UNITED STATES SENATE

SIXTY-FIFTH CONGRESS

THIRD SESSION

ON

## S. RES. 170

DIRECTING THE COMMITTEE ON COMMERCE TO INVESTIGATE ALL MATTERS CONNECTED WITH THE BUILDING OF MERCHANT VESSELS UNDER THE DIRECTION OF THE UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION AND REPORT ITS FINDINGS TO THE SENATE, TOGETHER WITH ITS RECOMMENDATIONS THEREON

JANUARY 2, 1919

Printed for the use of the Committee on Commerce

## PART 5

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# UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION.

**THURSDAY, JANUARY 2, 1919.**

UNITED STATES SENATE,
COMMITTEE ON COMMERCE,
*Washington, D. C.*

The committee met at 10.30 o'clock a. m. in the committee room, Capitol, Senator Duncan U. Fletcher presiding.

Present: Senators Fletcher (chairman), Ransdell, Vardaman, Martin, Nelson, Jones, Sherman, Fernald, Calder, Johnson, and Lenroot.

The CHAIRMAN. I have here three telegrams that I wish to submit to the committee, from Mr. Denman. The first is dated December 21. We have not had a meeting since then, and, of course, I have not had an opportunity to present it. It reads as follows:

SAN FRANCISCO, CAL., *December 21, 1918.*

Hon. DUNCAN U. FLETCHER
*Chairman Committee on Commerce, United States Senate,*
*Washington, D. C.*

I understand the Senate resolution requiring your committee to investigate the Hog Island contract and other shipbuilding matters will quite likely necessitate a report of Gen. Goethals, and my connection with them. I am, therefore, compelled, for the protection of my own record as chairman of the Shipping Board, to make clear the position taken by us on the matters on which Gen. Goethals and I disagreed.

This I can now do without feeling that I am adding to the perplexities of those absorbed in war activities.

Gen. Goethals is primarily responsible for the Hog Island contract and the choice of the corporations executing it. He published a statement on July 12, 1917, saying that the fabricated ship was his main reliance for obtaining additional war tonnage during the succeeding 18 months or 2 years, and he attacked my plan for obtaining a large emergency wooden fleet to supplement steel at a public banquet of steel men in New York.

The Hog Island plant of the American International Corporation was Gen. Goethals' principal reliance for producing this new steel tonnage. The President's order made the Shipping Board, not Gen. Goethals, responsible for this transaction. I declined to agree to the contract as presented to me by Gen. Goethals. For the eight days preceding my resignation Gen. Goethals vouched to me for the character and the constructive ability of the gentlemen of the American International Corporation and its allied associates with whom he had been negotiating for two months. He insisted that we should accept their figures of ship construction without giving to the Shipping Board the estimates on which they were based. On the third day he admitted that he did not have the figures in his possession and that they were in the records of the American International Corporation. He asked us to allow them a compensation nearly double that finally agreed upon by Admiral Capps. He asked us to build the plant, which has cost over $55,000,000, on the privately-owned land of the American International Corporation. He asked us to give to the corporation an option on the Government plant. The Attorney General's findings seem to justify our eight days' deliberation and refusal of such a blind acquiescence in the undisclosed contractors' figures.

Our ordinary steel contracts have produced many steel ships, but the entire period of the war Gel. Goethals's Hog Island scheme has not produced a single vessel, while the wooden material which I suggested using as an emergency supplement to steel has given to the Nation over one-half [the ships and over 40 per cent] of the new war tonnage other than requisitioned vessels contracted by the Emergency Fleet Corporation.

With regard to the wooden fleet to supplement steel, I ask you to find that I relied on steel vessels for the major part of our new tonnage (testimony, pp. 1066, 1071) and that I asked in the letter of the board to you of May 5 for a more drastic concentration on steel construction than desired by Gen. Goethals. The subsequent modification of my project for steel construction came at his request, and my first plan was finally adopted by the country in the fall of 1917, when all ordinary steel construction was stopped to free steel workers for ships and ammunitions.

I believed we would secure a large additional tonnage from wood despite the fact that the birds were singing in the trees from the timbers of which they were to be constructed. Over one-half [the ships and over 40 per cent] of the tonnage merchant ships built for the Government during the year, other that requisitioned ships of private contractors, was made of this much-abused material. Some of these have laid idle because of lack of engines, but engines are built of steel and not of wood. One hastily constructed wooden ship foundered. We expected a larger percentage, however. Within a week a hastily constructed steel ship also foundered, while the one Hog Island ship finished after the war does not seem to have been entirely satisfactory. The fleet of emergency wooden ships performed a substantial war service. Their value would have been incalculable had the war lasted another year.

I ask you to find that with the exception of the eight days' deliberation on the Hog Island contract I did not detain the execution of any shipbuilding contract, but I expedited the execution of the shipbuilding program to my utmost power. I ask you to find that the war shipbuilding on the Pacific coast has far outstripped that on the Atlantic, and that the administrators chosen by me and accepted on my recommendation, and who have remained despite all charges, are in large part responsible for this success. I ask that in your report you give credit to my administration for the affirmative accomplishments described at page 1103 of my testimony. Will you kindly read this statement into the records of your proceedings?

WILLIAM DENMAN.

On the 23d he wires:

SAN FRANCISCO, CAL., *December 23, 1918.*

Hon. DUNCAN U. FLETCHER,
*Commerce Committee, United States Senate, Washington, D. C.:*

In accordance with our understanding of last January that it might embarrass those engaged in war activities, I did not present to the Senate committee the documentary and other evidence supporting the statements in my telegram of last Saturday relative to wooden ships, Hog Island, and other shipping matters. The war is now over and I presume your committee will make a full investigation of the Hog Island scheme from the beginning. This testimony is necessary in considering the widespread attack on my administration, in the Senate and elsewhere, on the ground that the eight days' deliberation which I required on the Hog Island scheme seriously delayed the war shipbuilding program—charges which in one case enlarged the period to "three golden months." Will you kindly advise me whenever the committee sees fit to take these matters up and place this telegram on the record of your proceedings?

WILLIAM DENMAN.

Then, to-day, I received this telegram:

SAN FRANCISCO, CAL., *January 1, 1919.*

Hon. DUNCAN U. FLETCHER,
*Chairman Committee on Commerce, United States Senate,*
*Washington, D. C.:*

Please insert in fifth and seventh paragraphs of my telegram of December 21, after words "one-half," the words "the ships and over 40 per cent." In justice to Gen. Goethals and myself, would you kindly ask Mr. Schwab what percentage of the new contract tonnage, other than requisitioned, which was

completed during the war was under contract made during my chairmanship, including the 16 contracts on my desk when I resigned? Will you kindly ask him the same question regarding the phenomenal launching of July 4 last? I know Mr. Schwab well enough to be certain that in his justifiable enjoyment of his great accomplishments these questions will not embarrass him.

WILLIAM DENMAN.

What is the wish of the committee? Does the committee desire to hear Mr. Denman?

Senator NELSON. I do not think we are here to investigate him particularly. We want to investigate what has been done there.

Senator MARTIN. Yes. I have not heard his name mentioned in 12 months.

The CHAIRMAN. Well, we can file these and take them up at another time.

Senator NELSON. I present the following resolution. I have had copies made for the Senators.

Senator MARTIN. Excuse me, Senator. You do not ask in this resolution for any information about the requisitioned ships. Ought we not to have the same information about that—how many there are, whether they are finished, and what has been done with them?

Senator NELSON. Yes; that should be added. I move the adoption of this.

Senator VARDAMAN. Read the resolution.

Senator NELSON. I want to say, preliminarily, there is no use fooling with Hog Island only; we want to go into this whole subject and find out what has been done.

(Senator Nelson read the resolution referred to.)

Senator NELSON. And, in addition to that, although I have not included it here, I agree in what you say, Senator Martin, that we should have the same information about the requisitioned ships. I move the adoption of this resolution.

Senator LENROOT. I would like to suggest one or two additions. In your first paragraph, line 5, after the word "yards," I would like to add "and the terms upon which such contributions were made."

Senator NELSON. Yes; I accept that amendment.

Senator LENROOT. In paragraph 3, line 2, after the word "wooden," I would like to suggest inserting "including the dates of laying each keel and delivery of ship."

Senator NELSON. All right; I accept that amendment.

The CHAIRMAN. I think the resolution we have already adopted calls for a good deal of this.

Senator NELSON. Yes; but I wanted it in concrete form; in one answer.

Mr. PIEZ. The report we submitted some time ago, Mr. Chairman, covered a very considerable part of that; but I can reframe it so as to get it in exact line with this resolution.

Senator NELSON. Put it all in one report, so as to get it in concrete form.

Mr. PIEZ. We have in this report the number of requisitioned ships we have delivered and the employment in the several trades. A total of 280 ships has been delivered——

Senator NELSON (interposing). You can add that information in this report.

Mr. PIEZ. I think we have most of the data that you ask for in this report, but we can modify it and present it in the form which you want.

Senator CALDER. I would like to suggest the insertion after the second line in the third provision of your resolution this language: "and the number of completed ships purchased, and the character and price of the same."

Senator NELSON. All right; I have no objection to that.

(The resolution offered by Senator Nelson, as amended, is here printed in full, as follows:)

Let the Shipping Board and the Emergency Fleet Corporation furnish the committee the following data, at as early a moment as practicable:

1. The number of shipyards in which ships have been built, are building, or are contracted for to be built in the future on account of and on behalf of the Government; the location of each of these yards, and whether for wooden or steel ships; the amount contributed by the Government, directly or indirectly, in any form, for the construction and equipment of these yards, and the terms upon which such contributions were made; the capacity of the several yards and the number of ways in each; the number of ships that have been built, that are now being built, or that are contracted for in each yard, and the price to be paid for the same; the number of ships actually completed afloat and in the service, and the character of these ships, whether steel or wood, and the tonnage.

2. Furnish a statement of the aggregate amounts appropriated by the Government for shipbuilding purposes, and a detailed, itemized statement as to the amount that has been expended, where, and for what purpose.

3. A statement of the number of ships that have been completed and put afloat, either steel or wooden, including the date of laying each keel and delivery of ship, aside from the requisitioned ships, and the number of completed ships purchased, and the character and price of the same, and whether any of the ships turned out by the Emergency Fleet Corporation or the Shipping Board have been used in carrying troops, supplies, or ammunition to Europe, or bringing back soldiers to this country, and, if so, the number, names, and character of these ships.

4. The same as to requisitioned ships.

(On motion, duly seconded, the resolution was agreed to.)

Senator NELSON. Mr. Chairman, in the New York World of yesterday is a very valuable statement as to what has been accomplished by the Shipping Board. I want to read it to the committee, and then I want to ask Mr. Piez to make an answer to it and say wherein it is wrong. It goes to the root of the matter. (Reading:)

NOT A TRANSPORT BUILT ON ORDER OF UNITED STATES SHIPPING BOARD—ONLY THREE HAVE BEEN COMPLETED, AND THEY WERE UNDER CONSTRUCTION BEFORE WE WENT TO WAR AND REQUISITIONED—6,000,000 TONS PROMISED, ONLY 2,853,977 COMPLETED—ALL OF THE 507 VESSELS LISTED ARE CLASSED AS SEAGOING, BUT SOME HAVE BEEN WET ONLY BY TIDEWATER.

Not a single ship built to carry troops has yet been turned out on an order placed by the United States Shipping Board.

The World has obtained the official list of vessels built by the Emergency Fleet Corporation and delivered to the Shipping Board for operation.

It shows that three transports have been completed, but they were vessels ordered by private firms for passenger and cargo carrying, and would have been of service to the Government had not the Shipping Board been created. It requisitioned them.

This revelation is little more startling than the figures of ships built by the Fleet Corporation during the year 1918.

They include all vessels classed as completed up to and including December 28, and reach a total of 507 vessels of 2,853,977 dead-weight tons.

FAR BELOW THE PROGRAM.

This tonnage is far below the program of 6,000,000 tons announced by Chairman Hurley for last year. With 13 ships of 110,606 tons built by Japan added, the total would be 2,964,583 tons. Efforts were made to have several ships accepted on Monday and yesterday to swell the total to 3,000,000 tons, and when all the figures are in this result may be shown, or half what Mr. Hurley said at the beginning of the year he was figuring on.

These 507 vessels from American shipyards are ocean-going vessels—at least they are expected to be. The fact is that some of them have never made a voyage and have yet to be wet by other than tidewater. Just how many of them have been "completed" but not put in use has not been ascertained by the Fleet Corporation officials. When they turn a vessel over to the Shipping Board they consider it off of their hands. There the troubles of the operators begin.

The new steel vessels, or those upon which the basis of the future American merchant marine depends, number 395, of 2,454,077 tons, and of these 244, of 1,595,742 tons, were requisitioned ships. They were vessels building or that had been ordered built on private contract.

This leaves only 151 vessels of 858,333 tons listed on the Emergency Fleet Corporation's records as having been built under its direct contracts during the year, and it is admitted that these figures are too high, as new direct contracts were made for five vessels that are included in the number which had been ordered by private firms.

COMPARISON WITH OTHER YEARS.

In 1901 38 ships, of 285.555 tons, were built in this country. These were all of steel, wood not having been thought of then. Without allowing for the 5 vessels included in the 151 of the Fleet Corporation, its own records show that it can only directly credit itself with a yearly steel tonnage of 572,780 more than was built 18 years ago. In 1916 520,847 tons were built in this country, and in 1917 901,223 tons were built. Of this 1917 merchant output, the Fleet Corporation has listed 301,809 tons in its total of requisitioned ships which it has built since it was formed.

Of the year's requisitioned ships, besides the 3 transports first mentioned, 2 are passenger ships, 196 are cargo carriers, 32 are tankers, and 8 are colliers. All the 151 direct-contract vessels are cargo carriers.

Up to the time the armistice was signed, on November 11, the number of direct-contract steel ships completed was only 119.

The three transports listed as completed under the requisitioned ships are given as *Hull No. 442*, *Hull No. 434*, and *Hull No. 435*. These "hulls," the World has ascertained, are the steamships *Santa Ana*, *Orizaba*, and *Siboney*. The *Orizaba* will be recalled as the ship that carried the press representatives to France for the Peace Conference. All three ships were built by the William Cramp & Sons' Ship & Engine Building Co., in Philadelphia.

They were under construction for passenger carrying before this country entered the war. The *Orizaba* and *Siboney* are sister ships ordered by the New York & Cuba Mail Steamship Co., or the Ward Line, and the *Santa Ana* was ordered by W. R. Grace & Co. for the South American trade. They were requisitioned at the Cramps's yard by the Fleet Corporation. The *Santa Ana* was delivered on January 18—almost a year ago; the *Siboney* on April 8, and the *Orizaba* on May 31.

The word "transport" is not used in connection with even a single requisitioned vessel listed as delivered since May.

Since the armistice there has been a sudden falling off in production, despite the assurances of Mr. Hurley that shipbuilding was as important as ever and would go on uninterrupted. The Fleet Corporation's own figures give a total of only 14 steel ships of all kinds for last month, contrasting with 52 for November, which was the high-water month.

AS TO WOODEN SHIPS.

The production of wooden ships, which has reached a total of 102, fell away in November after it was decided to cancel the contracts for many of them.

In the Emergency Fleet News last June there was a convincing chart of the time taken to build the steel ships, together with this statement:

"Between 125 days and 150 days is the average time required for the erection of a steel ship from the date of the keel laying to acceptance, by most of the shipbuilding companies.

"Thirteen yards come into this classification, while eight are building ships in from 100 to 125 days' time. Three required from 75 to 100 days' time."

The real figures in the office of the Emergency Fleet Corporation, in Philadelphia, show that the average time from keel laying to delivery of the steel ships was 399.75 days in March, 203.7 days in August, and 188 days in November. In June, when the published chart came out, the average time was about 300 days instead of between 125 and 150 days.

*Ships built and delivered to Shipping Board in 1918.*

| | Steel. | | Wood. | | Composite. | | Total. | |
|---|---|---|---|---|---|---|---|---|
| | Number. | Tons. | Number. | Tons. | Number. | Tons. | Number. | Tons. |
| January | 11 | 91,441 | ..... | ..... | ..... | ..... | 11 | 91,441 |
| February | 16 | 124,650 | ..... | ..... | ..... | ..... | 16 | 124,[illegible] |
| March | 20 | 162,200 | ..... | ..... | ..... | ..... | 20 | 162,[illegible] |
| April | 30 | 162,805 | ..... | ..... | ..... | ..... | 30 | 162,[illegible] |
| May | 42 | 255,541 | 1 | 3,500 | ..... | ..... | 43 | 259,[illegible] |
| June | 42 | 252,585 | 5 | 18,000 | ..... | ..... | 47 | 270,[illegible] |
| July | 37 | 212,405 | 5 | 18,000 | ..... | ..... | 42 | 230,[illegible] |
| August | 41 | 236,045 | 19 | 67,500 | 3 | 11,000 | 63 | 314,[illegible] |
| September | 45 | 260,950 | 24 | 84,500 | 3 | 11,500 | 72 | 356,[illegible] |
| October | 45 | 283,300 | 30 | 107,200 | 2 | 7,500 | 77 | 398,[illegible] |
| November | 52 | 302,875 | 9 | 30,500 | ..... | ..... | 61 | 333,[illegible] |
| December [1] | 14 | 109,280 | 9 | 33,200 | 2 | 7,500 | 25 | 149,[illegible] |
| Total | 395 | 2,454,077 | 102 | 362,400 | 10 | 37,500 | 507 | 2,853,97[illegible] |

[1] December figures are those up to and including Dec. 28.

The CHAIRMAN. Is not that all in the report of the board, Senator?

Senator NELSON. I do not know.

The CHAIRMAN. Every bit of it, I think.

Senator NELSON. It shows how the program has fallen off in December. They have reduced it to 14 ships of steel, of 109,208 tons; 9 wooden ships of 33,000 tons; and 2 composite ships of 7,500 tons, a total of 25 ships of 149,980 tons. In other words, the shipbuilding has fallen off from the amount in November; you can take the three months preceding—August, September, and October—and you can see it has fallen off immensely.

Now, I have read this statement, and I should like to have Mr. Piez's answer, or the Emergency Fleet Corporation's answer, as to wherein this statement is wrong. I do not expect him to do it today, but I want an answer to this.

## STATEMENT OF MR. CHARLES PIEZ, DIRECTOR GENERAL UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION, PHILADELPHIA, PA.

The CHAIRMAN. Can you answer that now, Mr. Piez?

Mr. PIEZ. I can answer as to some of it, Senator, because it can be answered.

In the first place, the statement as to the December output is incorrect, because the December output has not yet been published. We have districts on the Pacific coast, and the reports do not get in until the 5th or 6th of the month following.

Of course, there has been a very considerable drop in the ship output in December, and that for two reasons: In the first place, we have stopped all overtime. In the second place, we have checked, wherever we could, the acceptance of vessels so as to see whether any modifications can be made in them that will make them more available for peace-time conditions. So we have not hurried deliveries as we have heretofore, and we have done that deliberately. But the output, Senator, that is given there will probably be exceeded by at least——

Senator NELSON (interposing). I have read this whole article, and I would be glad if you would send in a complete written answer, pointing out wherein it is wrong.

Mr. PIEZ. I shall be very glad to do that. May I say a few words concerning the transportation situation that that articles refers to?

Senator JOHNSON. Just before you reach that, Mr. Piez, you say that these various things were done designedly which curtailed production during December?

Mr. PIEZ. Curtailed deliveries.

Senator JOHNSON. Well, of necessity that would curtail production, would it not?

Mr. PIEZ. Not necessarily; no. We have held vessels for a very much more complete sea trial than we have heretofore, and we are making certain modifications——

Senator JOHNSON (interposing). Yes; but when you cease your overtime do you not in some degree curtail your production?

Mr. PIEZ. Yes; we do to that extent, but at the same time we reduce very much the expense of production.

Senator JOHNSON. Quite so.

Mr. PIEZ. And we did that deliberately, because we wanted to save the expense.

Senator JOHNSON. During December did you buy any ships?

Mr. PIEZ. Finished ships, you mean?

Senator JOHNSON. Yes.

Mr. PIEZ. Not that I know of.

Senator JOHNSON. Have the International mercantile ships been purchased by the Shipping Board?

Mr. PIEZ. I am not familiar with that transaction at all, Senator. I am engaged in the construction end of the Emergency Fleet.

Senator JOHNSON. Do you know whether or not it has transpired?

Mr. PIEZ. I heard they were negotiating; I have not heard of the completion of that deal, however.

Senator JOHNSON. Do you know personally whether or not that has been consummated?

Mr. PIEZ. I do not.

Senator JOHNSON. Do you know anything about the terms upon which the negotiations were made?

Mr. PIEZ. I do not.

Senator JOHNSON. Who would know?

Mr. PIEZ. The Shipping Board—Mr. Colby, probably, or Mr. Donald, or Mr. Whipple, perhaps.

Senator JOHNSON. Pardon me for interrupting, please.

Mr. PIEZ. Yes. The Shipping Board intended to construct cargo vessels solely, largely because the destruction of vessels by the submarines was limited practically to the slow speed cargo carriers. It

was not intended to build troop ships, and only 70 had been ordered, and those of a type that were a little below the size ordinarily assigned to troop ship purposes. Those 70 vessels constituted the class B type ships they were building at Hog Island, and they were built largely as a superior sort of cargo carrier with passenger accommodations. It was not until March, the end of March and early in April, of this year, that the War Department made a demand——

Senator VARDEMAN (interposing). Last year, you mean?

Mr. PIEZ. Yes.

Senator MARTIN. I see in the newspapers a statement that the British syndicate had agreed to let the Shipping Board have the International Mercantile Marine fleet on conditon that the Cunard Co. was to get back 1,000,000 tons of shipping that had been contracted for by that company and had been requisitioned by the Shipping Board. It looks like a not very helpful trade to take about 750,000 tons and give up 1,000,000. I just saw that in the newspaper.

Mr. PIEZ. But the 750,000 tons we would get would be of a very much more desirable character than the others.

Senator JOHNSON. Is it a fact that that particular trade is to be made?

Mr. PIEZ. I am not certain.

Senator JOHNSON. From whom can that be ascertained?

Mr. PIEZ. Probably Mr. Donald, who is the vice-chairman of the Shipping Board would have information of that, and he can probably assign some one, Senator. I am not privy to any of the details of that deal, and know of it only in the most general sort of way.

Continuing my statement in regard to the troop ships, it was not until March or early in April that the War Department made a demand on the Emergency Fleet Corporation for certain troop ships, and it was at that time that the two yards—one at the New York Shipbuilding Corporation's plant in Camden and one adjacent to the Bethlehem plant in Alameda—were constructed and contracts placed for troop ships.

Previous to that, in December, a contract for three troop ships was placed with the New York Shipbuilding Corporation. The others were the contracts for troop ships placed by the Emergency Fleet Corporation outside of the 70 ships ordered from Hog Island. There was no demand in the early days that the Fleet Corporation should build troop ships, largely because it was thought that accommodations could be gotten for the transfer of our troops through the interned German ships which were commandeered and through certain troop ship tonnage that England agreed to let us have.

The CHAIRMAN. If you got enough cargo carriers they would relieve the other ships for transporting troops?

Mr. PIEZ. Yes. And then it must be borne in mind that troop ships take fully two and a half or three times as long to construct as an ordinary cargo carrier, and a troop ship costing $4,000,000, which is about the estimate for the troop ships we are building, would hardly be built in less than 10 or 12 months.

Senator VARDAMAN. Are you building any of those ships now?

Mr. PIEZ. Yes.

Senator VARDAMAN. How many?

Mr. PIEZ. I am not certain as to that; I think about 18, Senator.

Senator NELSON. There is another matter that I omitted that I wish you would report on. That is, how many ships, steel and wooden, and other tonnage, you will have when your building contract is complete?

Mr. PIEZ. Yes: I will supply that information. That is in the report submitted.

Senator VARDAMAN. Will these troop ships you are building be used advantageously in the commerce of the country?

Mr. PIEZ. Yes; they are splendid passenger and mail ships, Senator, but the War Department thinks they want them completed as troop ships for the present. But they can be readily converted.

Senator JONES. When do you expect them to be completed?

Mr. PIEZ. The first deliveries are promised during the first half of the year; probably in May.

Senator JONES. Then you will not have the first deliveries before May or June?

Mr. PIEZ. No. But you see, Senator, our military program contemplated the sending of 90,000 troops a month, and at that time we had ample troop ship carrying capacity.

Senator VARDAMAN. Has construction begun on all those ships?

Mr. PIEZ. Substantially, yes. Of course, we canceled contracts for 20 of them that were placed with the Alameda Co.

Senator VARDAMAN. Do you think these ships are going to be finished early enough to be used in bringing our troops back to this country?

Mr. PIEZ. Some of them, yes; not all of them, Senator.

Senator VARDAMAN. Do you think they are really needed to bring them back? If we were not in war, would you advise the construction of those ships now to carry on the commerce of the country? We are going to be at peace.

Mr. PIEZ. If we were going to carry on the commerce of the country I would say they were absolutely necessary to supplement such merchant marine as we have already constructed—because we have practically no passenger ships; we have nothing but cargo ships.

Senator JONES. They need to be modified considerably for commerce?

Mr. PIEZ. Yes; but only in their internal arrangements, and not in their structure.

Senator JONES. Are those changes going to be made now before they are completed, or are you going to wait until they are completed as troop ships and modify them afterwards?

Mr. PIEZ. We have that up with the War Department to-day. If they insist, we shall have to complete them as troop ships. We have given them the probable dates of delivery, and Gen. Hines is to advise us within a very few days as to which of those shall be completed as troop ships and which as passenger ships.

The CHAIRMAN. Now, you can complete your answer to that, taking your time. Prepare it as fully as you like, Mr. Piez.

Mr. PIEZ. Yes. Of course, much of that has been brought up before, Senator. The statement attributed to Mr. Hurley concerning the 6,000,000 tons was thrashed out here in the meeting early in January or February. That statement was, I think, attributed to

Mr. Hurley in September, 1917. If you recall, we estimated that the probable output of shipping at the time of the hearing was somewhere between 3,500,000 and 4,000,000 tons. As a matter of fact, when we revised our estimate in March we estimated we would turn out about 3,100,000 tons.

Senator JONES. Dead-weight or gross tons?

Mr. PIEZ. Dead weight; all of our computations are in dead weight. I have a little diagram here showing the actual accomplishment.

Senator JONES. My recollection is that Mr. Hurley gave out some very glaring statements as to what they expected to accomplish this year.

Senator NELSON. I have seen a good deal in the Publicity Bureau about it, and also in the Hog Island publication.

Mr. PIEZ. I do not think any of those recent predictions, though, were anything like 6,000,000 tons. They certainly have not been issued by the executive offices of the Emergency Fleet Corporation in the construction division. We never contemplated 6,000,000 tons of construction, and we knew that was wholly impossible; and Mr. Hurley said that within a month after he came in, and based it on promises and delivery dates made in the contracts. He was justified at that time in assuming that the contractors knew reasonably well what they had undertaken.

Senator NELSON. Let me ask you a question right here. How many yards have we in which the Government has ships building? What is the total number?

Mr. PIEZ. I do not know that I can give you the number of yards. I believe I can give the number of ways, Senator.

Senator NELSON. No; I do not care about the number of ways.

Mr. PIEZ. I will prepare that for you, Senator, and include it in the answer.

Senator NELSON. Over 100, isn't it?

Mr. PIEZ. Oh, yes; about 150 or 160, including wood and steel.

Senator NELSON. Don't you think you would have accomplished better work if you had limited it to a less number of yards instead of scattering it all over creation? Would you not have done more rapid work if you had concentrated on a less number of yards?

Mr. PIEZ. In many cases; yes.

Senator LENROOT. Your report shows 198 yards.

Mr. PIEZ. Yes; but that covers yards of all characters, including barges and tugs. I am dealing now largely with the cargo ships, Senator.

Senator JOHNSON. May I ask you, Mr. Piez, about the Liberty yard across the bay from San Francisco, in Alameda County? Has that been abandoned?

Mr. PIEZ. Yes.

Senator JOHNSON. How much was expended on it?

Mr. PIEZ. I think the total expenditures and commitments—of course, we have to deal with both—were in the neighborhood of $9,000,000. I am not certain, Senator.

Senator JOHNSON. Is that loss?

Mr. PIEZ. Oh, no.

Senator JOHNSON. How much loss?

Mr. PIEZ. I am not certain as to that.

Senator JOHNSON. It has been published as some millions loss.

Mr. PIEZ. I should say there is a probable loss entailed in that of from $5,000,000 to $6,000,000.

Senator JOHNSON. That is totally abandoned now?

Mr. PIEZ. Yes. However, we own the property, for which we paid $1,000,000, and there is salvage to that extent. We will make a report on that just as soon as we complete our negotiations for adjustments growing out of the cancellations. I am simply giving you approximate figures.

Senator JOHNSON. I do not want to interfere with the orderly procedure of this hearing, but I wanted to ask you something about the cost of ships. I will defer it if the chairman has an order in mind.

The CHAIRMAN. Well, we have varied from our regular procedure already this morning.

Mr. PIEZ. I wanted to say one other thing in reference to that World report, because that does not sit very lightly on my conscience. I do not think it is altogether fair to judge of the accomplishments of the Emergency Fleet Corporation by the output of contract ships. When we requisitioned the yards and the shipping they had in them on August 3, 1917—and they included every yard that could build ships, cargo ships of any size—those yards were under contract for over 3,000,000 dead-weight tons of shipping. They had never turned out before that time more than one-sixth of that entire amount. Even to-day, almost 18 months after requisitioning, the keels for about 20 per cent of the requisitioned tonnage have not yet been laid.

Now, of that requisitioned tonnage, the construction that the Navy took over in all of the old, well-managed, and efficient yards, probably covered all of the shipbuilding facilities that existed when the Emergency Fleet Corporation went into business, and whatever has been accomplished by the Emergency Fleet Corporation had to be accomplished by constructing absolutely new facilities and then turning out vessels.

We did take complete control of all the shipbuilding processes on August 3, 1917, and we did very materially expedite the delivery of vessels that were under requisition, as well as the delivery of vessels that were under contract. So I think when we make comparisons between what has been done in the year 1918 and what has been done in previous years we should take the total tonnage, requisitioned tonnage built for the Navy, and tonnage built under contract, because I think, under the processes that the Emergency Fleet Corporation adopted, the encouragement it lent, the propaganda it developed in order to attract men to the shipyards, a very material increase in the production has occurred in those yards, and I think we are entitled in our comparisons to the entire output of the requisitioned and contract shipping as compared with previous years. To that ought to be added the very material output that the Navy secured from the shipyards. The Navy had under contract at the time of the requisitioning the equivalent of about 3,000,000 tons of cargo shipping, and the effort we made ought to be superimposed on that tonnage. And not only that, we were under the very dire necessity of constructing absolutely new facilities at a time when both the material and labor markets were very much congested. I think that ought to be borne in mind; I do not think it is unfair to ask it.

Senator JOHNSON. In the great San Francisco shipyard, the old Union Iron Works, what sort of ships are being constructed?

Mr. PIEZ. They are building cargo carriers and tankers—about 11,800 tons.

Senator JOHNSON. How much per ton do you pay for the ships there?

Mr. PIEZ. I am not certain as to that. The amounts vary, because the output there has been largely requisitioned vessels, Senator.

Senator JOHNSON. Do you know what they have contracted there, at how much per ton?

Mr. PIEZ. Yes; but I can not state offhand.

Senator JOHNSON. It is considerably less than $200, isn't it?

Mr. PIEZ. Yes; for the cargo carriers it is, I should say, about $185 or $190.

Senator JOHNSON. Those are steel ships?

Mr. PIEZ. Yes.

Senator JOHNSON. Fabricated?

Mr. PIEZ. No.

Senator JOHNSON. Not fabricated?

Mr. PIEZ. Constructed in the yard.

Senator JOHNSON. A more difficult process than constructing fabricated ships, is it not?

Mr. PIEZ. Yes.

Senator JOHNSON. In the Moore & Scott yard in Alameda County, what do you pay per ton?

Mr. PIEZ. About the same; the prices range about the same.

Senator JOHNSON. About $185?

Mr. PIEZ. Well, they are a little higher; about $190.

Senator JOHNSON. Are those steel ships constructed in the yard?

Mr. PIEZ. Yes.

Senator JOHNSON. At the Los Angeles shipbuilding plant at San Pedro?

Mr. PIEZ. All built in the yard.

Senator JOHNSON. And you pay there what?

Mr. PIEZ. About the same.

Senator JOHNSON. From $185 to $190?

Mr. PIEZ. Yes.

Senator JOHNSON. And those are all steel ships?

Mr. PIEZ. Steel ships, built in the yard.

Senator JOHNSON. Skinner & Eddy in the North?

Mr. PIEZ. The same there. I think Skinner & Eddy produce rather less of their machinery in the yard than the others.

Senator JOHNSON. And the prices are about the same?

Mr. PIEZ. Yes.

Senator JOHNSON. Is it not a fact at Hog Island you pay about $200 for fabricated ships?

Mr. PIEZ. I am not certain as to that.

Senator JOHNSON. Substantially?

Mr. PIEZ. I am not certain that that is even substantially the price, because it is absolutely impossible to determine at this time what the price will be.

Senator JOHNSON. You can say it will be over $230 a ton, can you not?

Mr. PIEZ. Well, I should say it would be about that for the first 50 ships.

Senator JOHNSON. Yes; and those are all fabricated ships, and the fabricated material is delivered at the yard with all the work done upon the fabricated material before it is put in the ship?

Mr. PIEZ. Yes; but you have got to depend, therefore, on facilities that have been created elsewhere, shops that have been created elsewhere, so the probability is they have got to pay a profit and pay more for the material that has been fabricated than it would cost if it were manufactured in their own plant.

Senator JOHNSON. Is that the fact? Aren't you in error there, sir?

Mr. PIEZ. I say "probably," Senator. I think this—but I am only judging from my own experience—that wherever you produce in large quantities it is cheaper to manufacture for yourself than it is to buy, particularly in times of stress.

Senator JOHNSON. What do you call large quantities?

Mr. PIEZ. I should say the quantities at Hog Island were very large quantities. The reason the fabricated idea was adopted there was not to develop a new process but to enable them to avail themselves of facilities that existed elsewhere and did not have to be reproduced.

Senator JOHNSON. Yes; and not only that, but in order, I presume, to have speed in construction, too?

Mr. PIEZ. Yes. And mind, the $220 per ton, if that be the cost, includes all cost; I mean the cost of the fabricated material as well.

Senator JOHNSON. Do you mean that the $185 a ton does not include that?

Mr. PIEZ. Oh, no. It is a comparable price, if $220 is right.

Senator NELSON. You do not include the interest on the Government investments in the yard, do you?

Mr. PIEZ. No; we do not.

Senator JOHNSON. Nor do you include anything in respect to the yard?

Mr. PIEZ. No depreciation; no, sir.

Senator NELSON. If that were included it would probably amount to over $250 a ton, wouldn't it?

Mr. PIEZ. It is very likely those items might run to $30 a deadweight ton, Senator.

Senator VARDAMAN. When could you have definite information as to what it would cost?

Mr. PIEZ. Well, Senator, with the varying prices of completing the first 50 ships, it is absolutely impossible at this time to determine that with accuracy, so far in advance of the total completion.

Senator VARDAMAN. How many have you completed up to date?

Mr. PIEZ. Three ships. There are two delivered. The first one has passed its trial successfully. The program for the first 50 ships is about 50 per cent completed. We must bear this in mind, that the first ship in any yard costs considerably more than the succeeding ships, because it has got to carry all the expenses of organization, and whatever preliminary and preparatory outlay there was, and it is hardly fair to conclude that because the first few ships have been very high the average of the yard will be high.

Senator VARDAMAN. Have you the cost of the first three ships?

Mr. PIEZ. No; I have not.

Senator VARDAMAN. You could not get that for the committee now? I grant you that you are right that the first ship must bear the expense of experimentation and all that, but could you furnish the committee that cost?

Mr. PIEZ. I will do my best, and see how far the figures have been completed.

Senator LENROOT. In that connection, Mr. Piez, in your annual report, on page 131, you give what purports to be the cost of these ships. Are we to understand now that is merely an estimate?

Mr. PIEZ. I think in all those cases the contract prices are figured, and then there is an additional figure covering the probable increase. The original contract prices at Hog Island were based on steel at $50 a ton. As a matter of fact, we paid $65 a ton for plate, and I think most of the material that was included in the estimates was underestimated by something like 20 per cent, because costs went materially higher. These figures were made, as I have been told, in the summer of 1917, when prices were in the ascent.

Senator JOHNSON. But take a yard like the Los Angeles yard, at San Pedro. There is a yard that was made out of nothing, was it not?

Mr. PIEZ. Yes.

Senator JOHNSON. They commenced at the very beginning without anything at all of the shipyard there, did they not?

Mr. PIEZ. Yes.

Senator JOHNSON. And they built a shipyard that has turned out ships for the Government, with all of the attendant cost in the initiation of that sort of new enterprise. Your contracts with them have been for $188 a ton?

Mr. PIEZ. Yes; their recent contracts were about $192, Senator. All of those contract prices have got to be corrected to cover the increased cost of wages, against which we have guaranteed them.

Senator JOHNSON. And so far as prices of steel are concerned, that you just spoke of as modifying the estimates of cost at Hog Island, they have had to deal with prices of steel in exactly the same fashion, and not on as favorable terms, have they, as at Hog Island?

Mr. PIEZ. They have the freight agains them, of course? The ship is a little larger, though, and a somewhat simpler ship.

Senator JOHNSON. But built wholly in the yard?

Mr. PIEZ. Built wholly in the yard, yes. The machinery is purchased outside, but they fabricate all of the hull material in the yard.

Senator LENROOT. And now, you have the report before you?

Mr. PIEZ. Yes. I will have to do a little figuring.

Senator LENROOT. Perhaps I can aid you. The original estimate was $267,000,000 for those ships?

Mr. PIEZ. Those are apparently the contract prices, Senator.

Senator LENROOT. All of this $267,000,000?

Mr. PIEZ. Yes, sir. I will tell you in just a minute; I have the details here.

Senator LENROOT. Your contract prices, according to the report were very much less than that.

I have before me the report of the Attorney General, showing that your original estimated cost, which would be the contract prices for the ships, was $256,000,000 at Hog Island.

Mr. PIEZ. Of course, we have added to that the cost of military requirements, which were not included in the original contracts—the cost of wireless, and so on.

Senator LENROOT. The point I am now getting at, Mr. Piez, is this: This report was made as of December 1, 1918. One reading the report would conclude that that was the cost of the ships, and yet I now understand that it falls very far short of the cost of the ships.

Mr. PIEZ. That is headed by this statement:

Shipbuilding contracts have been made with the three yards just described, as follows:

The term "cost" there should refer to the contract figures, because the cost is a rather indeterminate sort of an affair.

Senator LENROOT. The contract was a very indeterminate affair, was it not?

Mr. PIEZ. It had to be.

Senator LENROOT. I understand there was no contract to build the ships for this price at all, except as a measure of the fee?

Mr. PIEZ. The figures are used in the contract simply as a measure of the fee and an indication of the probable cost of construction, with such rectification as had to be made by reason of the advance in wages and materials.

Senator LENROOT. Yes. With no such explanation, this is a little misleading, is it not, to one reading this report?

Mr. PIEZ. I think, if I remember rightly, the total cost of all the contracts is given, and then some additional amounts added for probable increases. Suppose you give me an opportunity to reply in detail on that.

Senator LENROOT. Yes.

Mr. PIEZ. Otherwise I shall have to take some time to develop these figures.

Senator LENROOT. I now wish to direct your attention to the ships of the Merchant Shipbuilding Corporation, referred to on the same page. The contracts were made at the same time. For the Hog Island ships, as I estimate it, the average rate per ton was about $184, while for the Merchant Shipbuilding Corporation it was $152.

Mr. PIEZ. Bear in mind that there are 70 troopships at Hog Island that run considerably higher than $200 per ton, Senator.

Senator LENROOT. That is true, but I also find that the third contract made May 7, 1918, which is for a cargo ship, ran $190 per ton.

Mr. PIEZ. Where? At Hog Island?

Senator LENROOT. Yes. How do you explain the discrepancy in the estimates of $152 per ton for the Merchant Shipbuilding Corporation for cargo ships and $190 a ton for Hog Island?

Mr. PIEZ. In the first place the merchant contracts were made, I think, quite a little over a year ago. They were based absolutely on the rate of wages prevailing before the first advance was made. They were based on $50 steel, and they represented the current rate of shipping of that character at that time. The contract with Hog Island, made in May, took account of the increased cost of material

and the increased cost in wages, and represented about the current price for vessels of that type and that tonnage in May. In the case of the Merchant Shipbuilding Co., that figure is simply an indication, Senator. They have exactly the same kind of contract that the Hog Island people have.

Senator LENROOT. Yes. What I am trying to get at now is the difference in the estimates. One would naturally assume that the estimated cost, especially for contracts made at about the same time, would be the same.

Mr. PIEZ. It depends very much on the type of vessel, whether they have one or two decks, what the ratio of power to tonnage is, what the character of the power is, and what the character of the boilers is. The price depends on many things.

Senator LENROOT. May I ask you, Mr. Piez, to furnish later to the committee the estimated cost for each type of ship under each contract that you have set out here?

Mr. PIEZ. Under those three contracts?

Senator LENROOT. Those three contracts. Now, with reference to the cost of the yards, as a construction engineer, would you say that the cost per way would be greater or less for a large number of ways as compared with a yard having a small number of ways?

Mr. PIEZ. Well, ordinarily, of course, the price would recede a little as the number of ways increases—not very much if there were a reasonable number of ways in the first instance.

Senator LENROOT. I find from your report here, assuming the Hog Island yard to have cost $63,000,000, that yard will cost you $1,260,000 per way; the Bristol yard, another Government yard, $1,000,000 per way, where they had but 12 ways; and the Submarine Boat Corporation, at Newark, N. J., where they have 28 ways, $608,000 per way. What have you to say about that?

Mr. PIEZ. I covered that fairly fully in a letter that I wrote to Mr. Hurley in relation to figures submitted in the Attorney General's report. I would be very glad to submit that, or read it. It is rather lengthy, but it covers the essential reasons for the difference in cost. Do you want me to read that?

Senator LENROOT. I do not know, if it is a long letter; I would like to have it in the record.

The CHAIRMAN. You might put the letter in the record with any comment you wish.

Mr. PIEZ. I shall be very glad to do that. The answer has necessarily got to be long, because there are many factors that conspire to make up that cost.

The CHAIRMAN. Perhaps it might be better to read the whole letter.

Senator LENROOT. All right.

The CHAIRMAN. Senator, do you refer now to the statement on page 20 of the Attorney General's report?

Senator LENROOT. No; this was a computation of my own that I made from the annual report.

Senator VARDAMAN. I should say to let him read that letter and answer the question from the letter.

Mr. PIEZ. Mr. Hurley sent me a letter inquiring whether the figures used in the Attorney General's report were substantiated by the cost of the completed plant. The Attorney General's investigation was

made, of course, early in the year, long before the plants were finally finished, and what Mr. Hurley intended to ascertain was whether the estimated cost of completion had been substantiated by the actual cost of the completed plant. My letter is in reply to Mr. Hurley's letter [reading]:

PHILADELPHIA, *September 25, 1918.*

Mr. E. N. HURLEY,
*Chairman United States Shipping Board,*
*1319 F Street, Washington, D. C.*

DEAR SIR: Answering your letter on the subject, the figures appearing in the Attorney General's report show the comparative costs per way for the Hog Island, Bristol, and Newark Bay shipyards, as follows:

Cost per way: Hog Island, $1,100,000; Bristol, $699,000; Newark Bay, $390,000.

These figures, in the case of both the Bristol and the Newark Bay yards, seem to be considerably below figures which are based on expenditures to date plus estimated cost of completion. This discrepancy may have arisen from the fact that the figures given by the Attorney General were based upon costs and estimates as they appeared early in the year and long before the plants reached their present state of completion, and at a time when actual operation had not yet indicated what additional facilities and construction had to be provided to meet the needs of the ship-construction contracts undertaken by these yards. I am not advised how the Attorney General arrived at his figures, but the costs as they appear to-day plus a close estimate of the expenditures still to be made to complete the yards are as follows:

Cost per way: Hog Island, $1,177,000; Bristol, $883,331; Newark Bay, $607,200.

You ask whether there are any reasons for this difference in cost. There are several very vital ones which I submit herewith, together with an approximate estimate of the costs due to them. These costs are stated to be approximate only, because the three plants did not classify their expenditures along exactly similar lines, and corrections and adjustments therefore had to be made. But they are sufficiently accurate to serve the purpose of comparison.

Before going into details permit me to say that the Bristol yard is erected on the site of an old industrial plant; that it required the construction of neither streets nor sewers, and practically no grading or clearing. The buildings of the old plant were substantial and are being used to good purpose in the shipyard. The cost of the Bristol property, which, of course, does not appear as a part of the shipyard cost, included therefore a very considerable number of improvements that had to be added to the other two yards.

The Newark Bay yard is erected on a site under lease from the city of Newark, and prepared by it for the construction of a shipping terminal. It was fully filled in and partially bulkheaded, and presented a very admirable site for the construction of a large yard.

Hog Island was selected after careful investigation as the best available site for the construction of a 50-way yard, and this selection was approved by the Emergency Fleet Corporation. Yet the location was completely isolated, without roads or sewers, a mixture of marsh and high ground, requiring extensive grading and filling. The advantages of Bristol and Newark Bay, growing out of a more favorable location, are indicated by the fact that the items of clearing the site, grading, dredging, fences, roads, sewers, and improvement of grounds cost $159,100 per way more at Hog Island than the corresponding items at Bristol, and $126,200 more than those at Newark Bay. These differences in cost were, no doubt, accentuated by the fact that most of this work in which there was such an excess at Hog Island was carried on during Arctic weather.

Another considerable difference growing largely out of the greater isolation of Hog Island is in the item of power plant and power and light distribution. Hog Island and Newark Bay purchase their power from public utility companies. Bristol has extended a power plant which was in the site at the time of purchase. The length of power cable to bring power to the plant was very materially greater at Hog Island than at Newark Bay. Hog Island costs on this item exceed those at Bristol by $35,104 per way, and those at Newark Bay, by $62,100 per way.

As you know, the Government fabricating plants were constructed with the intent of confining each to a single type of vessel. Yet it appeared to the Fleet

Corporation wise to depart from the original intent, and a second type of vessel of a very much more complicated character was ordered from Hog Island last fall. This ship was much larger than the original cargo carrier, much faster, and will be fitted as a troop transport. Very material additions to the size of the ways, the fitting out slips, the raw materials storage yard, and the various storehouses and shops had to be made because of this added complication. The estimate at the time was that the change would add $6,000,000 to the cost of the yard, or $120,000 per way.

In making comparison of the cost of the ways in the three yards it should be borne in mind that the Newark Bay Yard is designed for a 5,000-ton cargo ship, the Bristol Yard for a 9,000-ton cargo carrier, and the Hog Island Yard for a 7,500-ton cargo carrier, and a combined cargo and troop ship of considerably increased dimensions.

The ways at Newark Bay are designed to accommodate ships 335 feet in length, 46 feet beam, and 28 feet 6 inches depth. Those at Bristol will accommodate vessels up to 500 feet in length, 60 feet beam, and 34 feet depth, while of the 50 ways at Hog Island, 20 will take vessels 487 feet long, 68 feet beam, and 28 feet depth, and 30 will take vessels 541 feet long, 68 feet beam, and 31 feet depth.

The average of all the ways at Hog Island will therefore accommodate a vessel about 520 feet in length, as against one of only 335 feet at Newark Bay.

The cost of building the slips, including cranes, blocking, staging, and launching equipment at Hog Island exceeds the cost of the similar items at Bristol by $53,170 per way, and that of the corresponding items at Newark Bay by $220,600 per way—a difference amply justified by the difference in size and character of construction at the three yards.

The railroad trackage, the rolling stock, and the locomotive cranes for handling raw materials had to be extended over those provided for in the other two yards because of the additional storage facilities and yards rendered necessary by the addition of the troopship to the Hog Island program.

These extensions count for an excess in these items of $53,385 per way over Bristol and $34,500 per way over Newark Bay.

The last item which shows a considerable difference in cost per way is that of housing and transportation facilities. Barracks accommodating 5,000 men have been erected in the Hog Island Yard and are included in the plant cost though they belong more properly in the cost of housing, but in this item Hog Island exceeds Bristol by $8,052 per way and Newark Bay by $34,100 per way.

These five groups of items, covering differences attributable to advantages of location, to size and character of construction, to complications growing out of the placing of the troopship contract at the Hog Island yard show that as to the remainder of the items constituting the cost of these plants, Bristol exceeds Hog Island by $115,151 per way, and Hog Island exceeds Newark Bay by $92,300 per way. The former difference can be explained by the fact that the Bristol plant is arranged to do more of its own manufacturing, and the shops are therefore relatively larger and better equipped, and the latter differences can be, in part at least, explained by the fact that the Newark Bay plant had an earlier start and was well under way when winter set in, and operations there were not as seriously and adversely affected as they were at Hog Island.

A careful review of both the figures and all of the attendant circumstances prompts the suggestion that it would be very unwise, if not unfair, to deduce from the differences in cost per way that Hog Island was not as economically constructed as either of the other two plants. I doubt very much if, with the advance in labor costs, Hog Island could be reproduced to-day, even under more favorable weather conditions, at any less. And, above all, it must be remembered that Hog Island presents an opportunity for salvage value as a shipping and railroad terminal that far exceeds that of either of the other two plants. Newark Bay is on leased land, and must eventually be disposed of at scrap value, and the location of the Bristol yard holds out no great promise for continued usefulness upon the return of keenly competitive conditions. Its salvage value will be seriously affected by this fact.

Very truly, yours,

CHARLES PIEZ,
*Vice President and General Manager.*

Senator LENROOT. So that the explanation in that letter is that a very large proportion of this additional cost of the Hog Island yard was due to the natural conditions that existed and the disadvantage of location?

Mr. PIEZ. Yes; and endeavoring to build a very large yard under high pressure.

Senator LENROOT. Speaking from the standpoint of expedition and the necessity of securing ships, would it not seem that a colossal mistake was made in locating that yard there under those conditions?

Mr. PIEZ. I do not know that I can——

Senator LENROOT. I will withdraw that question, Mr. Piez.

Mr. PIEZ. Thank you.

Senator LENROOT. Now, Mr. Piez, in your report you divide the operations of the Emergency Fleet Corporation, so far as expenditures are concerned, into three classes: Government agency yards, investment yards, and contract yards. Am I correct in that?

Mr. PIEZ. Yes.

Senator LENROOT. In your report you speak of four Government agency yards. You have gone into detail with reference to three of them, but make only a very casual reference to the fourth, which is the yard of the Carolina Shipbuilding Co., located at Wilmington, N. C. What is the Carolina Shipbuilding Co.?

Mr. PIEZ. The Carolina Shipbuilding Co. is constructing a yard with four ways at Wilmington, N. C. Our agents there are the Carolina Shipbuilding Co., which in reality is the Fuller Construction Co., of New York, who are large builders.

Senator LENROOT. Are they the agency for the construction of the ships as well?

Mr. PIEZ. Yes.

Senator LENROOT. What experience did the Fuller Construction Co. ever have in the construction of ships?

Mr. PIEZ. They gathered with them certain men that did have experience in it, and they are making an extremely good job of the yards.

The CHAIRMAN. Is that a concrete-ship yard?

Mr. PIEZ. No; this is a steel shipyard.

Senator LENROOT. When was that yard begun?

Mr. PIEZ. I am a little uncertain. Perhaps in March or April, Senator, and I appeared before this committee at the time because it seemed necessary at that time to extend our shipbuilding facilities. I think we made a very wise selection there, and I have no reason to regret the step that we took at that time or the selection of agents. In that particular case our contract imposed a penalty by way of deducion from the fee in case either the yard or the ships exceeded the estimated amount.

Senator LENROOT. How does it comes that no reference is made to this shipyard?

Mr. PIEZ. Because it is still under construction.

Senator LENROOT. No keels have been laid?

Mr. PIEZ. They are just about ready to lay the first keels.

Senator LENROOT. And there are only four ways in this yard?

Mr. PIEZ. Yes.

Senator LENROOT. In this housing report, which has been made a special report to this committee, I observe it is contemplated that the expenditure of $500,000 will probably have to be made, or should be made, notwithstanding the ending of the war, for housing for these four ways. Is that possible, Mr. Piez?

Mr. PIEZ. We have another yard there, you know; another yard of four ways at Wilmington, a concrete yard. We did intend to make it a six-way yard, and we reduced the number to four.

Senator LENROOT. What is the name of that company? Is that the Wilmington Steel?

Mr. PIEZ. No. It is the Liberty Yard.

Senator LENROOT. What is the Wilmington Steel? I notice reference here to a curtailment of contract with the Wilmington Steel.

Mr. PIEZ. Where is that?

Senator LENROOT. On page 112 of your report, "Investments in fabricated yards."

Mr. PIEZ. That is the Wilmington Steel Yard; it is not the Wilmington Steel Co.

Senator LENROOT. That is the Carolina?

Mr. PIEZ. Yes, sir.

Senator LENROOT. You say no keels have been laid?

Mr. PIEZ. I think the first keel was laid there within a month. I am not certain as to the date.

Senator LENROOT. Let me come back to this housing proposition. Is it the intention of the Shipbuilding Corporation to go on and proceed with the expenditure of a large amount of money for housing where housing has not been begun at all?

Mr. PIEZ. It is not.

Senator LENROOT. You then do not concur in that part of the report of Mr. Taylor where he expresses the opinion it would be necessary to expend $500,000 there for housing purposes?

Mr. PIEZ. You see, Senator, this report was written before the signing of the armistice.

Senator LENROOT. Oh, it was written before?

Mr. PIEZ. Yes; it was prepared before the close of the war.

Senator LENROOT. So we may say now that project will not be continued?

Mr. PIEZ. Yes. While the report was dated December 1, it had to get into the hands of the printer long before that, and it was prepared before the signing of the armistice.

Senator LENROOT. What is the date of the last contract that has been let, Mr. Piez, for ships?

Mr. PIEZ. There have been no contracts executed unless commitments were made before September 26.

Senator LENROOT. You mean where everything was done except the formal execution of the contract?

Mr. PIEZ. Yes.

Senator LENROOT. None have been made?

Mr. PIEZ. No.

Senator LENROOT. And none in immediate contemplation?

Mr. PIEZ. No; we have stopped the contracts for new construction, and have for some months.

Senator LENROOT. Coming back to these investment plants, an agency plant is where the Government furnishes all the money?

Mr. PIEZ. Yes.

Senator LENROOT. Let me ask you, by the way, in reference to the Merchant Shipbuilding Corporation, has that contract ever been put into the record?

Mr. PIEZ. Yes; all of the contracts.

Senator LENROOT. And also with the Submarine Boat Corporation?

Mr. PIEZ. All of the contracts were in the early records.

Senator LENROOT. The Submarine Boat Co. contract has been changed to a lump-sum contract?

Mr. PIEZ. Yes, sir.

Senator LENROOT. Was a new contract made?

Mr. PIEZ. Yes.

Senator LENROOT. Has that been put in the record?

Mr. PIEZ. I think it was. Mr. Schwab, I think, appeared in explanation of the contract. If not, we will see to it that it does go in.

Senator VARDAMAN. Mr. Chairman, are we going to finish this hearing? I am very anxious to be on the floor of the Senate this morning.

Senator LENROOT. I will be through with Mr. Piez in just two or three more questions.

Senator VARDAMAN. I did not want to interrupt you.

Senator LENROOT. With reference to investment plants, let me call your attention to page 121 of your report. You say:

> The Emergency Fleet Corporation furnishes the major part of all of the sums needed for plant construction for most of the e, and retains title to the property paid for by it.
>
> The contractor, as a general rule, has an option to purchase the plant, and the Fleet Corporation in some instances has the right to purchase the real estate of the owner.

Now, I would like to have you explain to the committee how the Government is protected in its expenditures in these investment plants, if at all.

Mr. PIEZ. Some of the contracts involve a right on the part of the Government to purchase the property in order to protect this entire investment that has been put on their property. In cases like the case of the New York Shipbuilding Corporation, in which under the pressure of our needs we asked them to add three additional ways for the production of a certain type of ship, the provision is that there shall be an appraisal, and that they shall have the right to purchase. There could not be a counter option, because the property on which these particular improvements are located is part of a huge plant, and the right to purchase the property would, therefore, involve the right to purchase the entire plant. We could not resort in every case to the method that would insure full protection to the Government, Senator. We did the very best we could, because many of these plants were not willing to undertake further construction. We practically had to insist that they expand their facilities in order to get out the additional ships that were required, and that was particularly the case in the older yards, upon whom we had to depend for the higher grade and higher type of ships.

Senator LENROOT. Take the case of the New York Shipbuilding Co., where we advanced them $14,000,000. Do I understand that that is for the addition of only three ways?

Mr. PIEZ. Oh, no; I had reference to several minor improvements other than that major one.

Senator LENROOT. If the New York Shipbuilding Co. does not exercise its option, what becomes of the investment?

Mr. PIEZ. We have got to scrap it; remove it.

Senator LENROOT. So far as these yards are concerned, there is no such thing as scrapping or removing?

Mr. PIEZ. No.

Senator LENROOT. They will get them, substantially?

Mr. PIEZ. Yes.

Senator LENROOT. Was there no way in which the Government could be protected for any of the expenditures it made, depending wholly upon the will of the shipbuilding company, through generosity to the Government, to pay them something for it when it was there?

Mr. PIEZ. I think we would have to go into the details of each case, Senator. In that particular case the contract that we made at that time was the best contract that we could secure. We made it under terms that were advantageous.

Senator LENROOT. Did not the Government save the New York Shipbuilding Co. from a tremendous loss when it requisitioned the ships in August, 1917?

Mr. PIEZ. No; we paid them only just compensation, just as we did in every other yard.

Senator LENROOT. But did they not have contracts, Mr. Piez, valid contracts, to carry out which would have involved the New York Shipbuilding Co. in tremendous losses, and did not the requistioning on the part of the Government save the New York Shipbuilding Co. from those losses?

Mr. PIEZ. Yes. They did in many cases, too, Senator.

Senator LENROOT. Oh, I am not saying that. As a matter of fact, one case came before this committee where a tanker was upon the stocks of the New York Shipbuilding Co., and it appeared that the company had agreed to build that tanker for $95 per ton, I think. The Emergency Fleet Corporation requisitioned it and paid them cost plus a profit of $10 per ton, whereas in carrying out the contract there would have been a tremendous loss, would there not?

Mr. PIEZ. Yes.

Senator LENROOT. And the Fleet Corporation had no use for that tanker, and turned it back to the contractor, requiring him to pay $625,000 more than the contract price.

Mr. PIEZ. We went into that rather fully, Senator, at one of the former hearings. I do not believe you were here at that time. Mr. Doheney was here.

Senator LENROOT. I was here at the time Mr. Doheney was here.

Mr. PIEZ. What we did was to requisition the vessels that were under construction and step in and force them to expedite completion. We were willing to pay the price. We asked them to work overtime. We specified that they should pay increased wages. We asked them to add to their facilities. And we could not do that and invoke the terms of the contract, the price included in the contract, that was signed some 18 months before. We did tell them that we would pay them just compensation, and we felt that just compensation was the cost, their out of pocket expense, covered by the definition of cost that was included in the contract, plus $10 per deadweight ton, which was certainly a very reasonable profit. The output of the New York Shipbuilding Co. in 1917, struggling under

disadvantages, was five ships. I think when I appeared here in July or August they had turned out 13 this year. As I remember it, the five ships last year ranged between 3,300 and 3,400 tons, and the output this year will run about 130,000 tons. We feel we were amply justified in making that contract.

Senator LENROOT. I am not now reflecting in any way upon the contract, except that when the Emergency Fleet Corporation saved the New York Shipbuilding Co. from these tremendous losses, and probably from financial wreck, it does seem to me that for them to exact from the Government a contribution of something like $14,000,000 without any guaranty of the Government having any portion of this back, it does not demonstrate very much reciprocity on the part of the New York Shipbuilding Co.

Mr. PIEZ. Well, there were reasons on their part, too. They were very reluctant to do anything at all; they said they had all of the facilities there that they could possibly handle; and then the War Department came at us and said that they needed almost 1,000,000 tons of transports, and in view of the fact that the New York Shipbuilding Co. had property available it was selected as one of the yards that was competent to undertake this additional construction, and we had in a measure to persuade them—the contract was a compromise. I think it was the best contract that we could enter into at that time.

Senator VARDAMAN. Admitting, of course——

Mr. PIEZ (interposing). Senator, may I add this?

Senator VARDAMAN. Yes; certainly.

Mr. PIEZ. That we have preempted the capacity of those facilities for several years, Senator, so that they are available, and the New York shipbuilding facilities can be written off against the output of ships.

The CHAIRMAN. How many ships have they contracts for now?

Mr. PIEZ. I think they have got about 14 transports, Senator; and the compromise contract provided for the repayment of the cost of that outlay through our preempting a certain proportion of the profits of the entire operations of the New York Shipbuilding Co.

Senator LENROOT. Are these lump-sum contracts?

Mr. PIEZ. No; and we could not place a lump-sum contract because the ship design had not been developed at the time we placed the contract.

Senator LENROOT. What is it; fee?

Mr. PIEZ. It is cost plus a fixed fee. All of those contracts for troop ships are of the same character.

Senator LENROOT. Mr. Piez, with reference to the housing situation, I assume Mr. Marshall will know the details of that?

Mr. PIETZ. Mr. Taylor will tell you about that.

Senator LENROOT. I mean Mr. Taylor.

Mr. PIEZ. I will be glad to have Mr. Taylor come here, because he is familiar with all of the details.

Senator LENROOT. I assume he is.

Mr. PIEZ. The Emergency Fleet report has been affixed here. I do not know whether you gentlemen have seen that report which I submitted in answer to Senator Harding's resolution.

Senator LENROOT. I have the report under date of December 14; is that the one you mean?

Mr. PIEZ. I presume so.

The CHAIRMAN. In answer to Senator King's resolution?

Mr. PIEZ. Yes.

Senator CALDER. Last fall we changed the form of contract with the Submarine Boat Co. from a fee-profit to a lump-sum price, including profit; how has that worked out?

Mr. PIEZ. Well, we are working under the lump sum. I do not know how it is working out. You mean so far as they are concerned?

Senator CALDER. I mean so far as the expedition of the work is concerned.

Mr. PIEZ. They are doing first rate in the Submarine Boat and getting the hulls in the water and equipping them. But we have had tremendous trouble with the turbines. The Submarine Boat should have had some 10 or 12 vessels delivered by this time, but we have had tremendous trouble with the gears of the turbines. I think they have had something like 16 or 18 vessels in the water, a large part of them almost fully equipped, but which are being held up by reason of the failure of these gears. That is a failure that is not attributable to the yard, because the turbines were purchased from the Westinghouse people and the Westinghouse made some error in the matter of oiling and setting of the gears.

The CHAIRMAN. They are trying to remedy that?

Mr. PIEZ. Yes. The first ship has been accepted and the gears seemed to be working properly, but trouble developed in the gears on the second ship during her trial trip.

The CHAIRMAN. What have been the deliveries by the Submarine Boat?

Mr. PIEZ. They have only delivered one ship.

The CHAIRMAN. And that developed this trouble you have told the committee about?

Mr. PIEZ. Yes.

The CHAIRMAN. What have been the deliveries of the Merchants?

Mr. PIEZ. The Merchants have not delivered any ships. One ship went out on its trial trip and passed the trial successfully, but met with an accident to her hull coming up the river.

The CHAIRMAN. What have been the deliveries of Hog Island?

Mr. PIEZ. Two ships have been delivered, and the third one will be delivered to-day at 3 o'clock. They have all been tried out and tested actually in service and had a sea trial with Navy representatives aboard.

The CHAIRMAN. How many have they launched there?

Mr. PIEZ. Twelve. They launched five ships in five days recently.

Senator LENROOT. In that connection, Mr. Piez, to quote from your annual report:

> It was found that direct governmental ownership and operation of the yards was the only satisfactory course to follow.

Mr. PIEZ. What page is that?

Senator LENROOT. It is on page 129. Do you wish us to understand from that that you think that the building of ships has been expedited more rapidly and that results have been secured in these Government yards greater than have been secured in private yards?

Mr. PIEZ. Just where is that clause you refer to?

Senator LENROOT. It is on page 129.

Mr. PIEZ. Which paragraph?

Senator LENROOT. The next to the last paragraph, beginning with the words:

Moreover, this was the countries' business and it was found that direct governmental ownership and operation of the yards was the only satisfactory course to follow.

Mr. PIEZ. I think that statement is based on what immediately precedes it, and I think what the writer of it had in mind was that the outlay of money was so large that no private enterprise could be induced to engage in it, and that therefore governmental ownership and operation was the only satisfactory way to proceed, purely as an emergency proposition.

Senator LENROOT. So far as results are concerned, it is true, is it not, that private yards that were begun subsequent to the beginning of some of these Government yards have delivered more ships than have been delivered from governmental yards?

Mr. PIEZ. There is only one private yard that has that distinction, and that is the Los Angeles yard. Most of the other yards that have done well were begun quite a time before the war began.

Senator LENROOT. But many of the other yards have been so extended, as to mean practically the erection of new yards?

Mr. PIEZ. No. Our biggest producer has not been extended in two years—the Skinner & Eddy yard.

Senator LENROOT. It is not true of the Great Lakes yards building smaller ships?

Mr. PIEZ. No, of course; they had larger vessels there, and we did assist them in increasing their facilities.

The CHAIRMAN. Mr. Piez, you made some reference in your earlier statement about the Navy undertaking to build cargo ships?

Mr. PIEZ. No. I meant that the Navy program, translated into a cargo ship equivalent.

The CHAIRMAN. I see. You did not mean that the Navy itself was undertaking to build cargo ships?

Mr. PIEZ. No. Whatever cargo ships the Navy is building are being constructed under our orders, Senator.

The CHAIRMAN. At the time we had our meeting when we were undertaking to bring Hog Island down to date, you were asked whether or not it was the purpose of the Emergency Fleet Corporation to continue that agent in carying on its contract, or whether it was the purpose to take the shipyard over and operate it. You stated, as I recall, that you and your associates were making investigations there and that you would be prepared to announce your conclusions on or about January 1?

Mr. PIEZ. After January 1.

The CHAIRMAN. May I ask if you have completed your investigations and are now prepared to state what your conclusions are and why?

Mr. PIEZ. We have almost completed our investigations. Admiral Bowles and I have had repeated sessions on this very subject. We had a session with all the heads of the departments of the Hog Island Shipyard last Monday night, and the conclusions that we have arrived at are that it would be unwise at this time, by reason of the improvement in conditions at Hog Island and the improvement in

output, to make any changes in the management. I want to add that our agents have recently made a very considerable change in the management themselves, and that both the admiral and I feel that the new management should be given an opportunity to show its ability to handle that situation.

Senator NELSON. Mr. Piez, may I interrupt you there just a minute?

Mr. PIEZ. Yes, sir.

Senator NELSON. You remember that during our former hearings here attention was called to the high salaries that they were paying to their force, and I noticed the Attorney General called attention to that. Have those high salaries continued at that rate?

Mr. PIEZ. No; there has been a very material reduction and a change in many of the men who received those high salaries, Senator

Senator NELSON. Stone & Webster's chief engineer got a double salary under this arrangement from what he was getting with Stone & Webster.

Mr. PIEZ. You mean Mr. Goodenough?

Senator NELSON. Yes.

Mr. PIEZ. Mr. Goodenough is no longer with the corporation.

Senator NELSON. He has left them?

Mr. PIEZ. Yes.

Senator NELSON. When did he leave?

Mr PIEZ. Several months ago, I think, Senator.

Senator NELSON. Have they put any one in his place?

Mr. PIEZ. No; but I am reminded of that fact that after this inquiry was begun the Stone & Webster Co. paid that salary, and that the Government did not; that change was made at that time.

Senator NELSON. The change was made then?

Mr. PIEZ. Then, yes; that they took over that salary.

Senator NELSON. They took over that?

Mr. PIEZ. Yes.

Senator NELSON. When was that?

Mr. PIEZ. Mr. Knight says it was last spring. I can give you the exact date of that, Senator.

Senator VARDAMAN. Is this investigation going to continue during the sittings of the Senate?

The CHAIRMAN. That is with the committee, Senator.

Senator VARDAMAN. I move that we take a recess now until half past 2 o'clock. I have got to be on the floor of the Senate this morning, and I want to be here at this investigation.

The CHAIRMAN. Before we put that motion I want to call attention to a telegram from Mr. Schwab. We expected him to be back to-day, and he wired me on the 27th. [Reading:]

Matters of importance make it necessary for me to sail for Europe on Tuesday, December 31. I hope this will not inconvenience you. I expect to be back by the 1st of February, and will then be delighted to appear before your committee. I would postpone my trip if another ship were available, but it is not. Will you please be good enough to telegraph me your concurrence in my request, as the matter is of great importance, and at the same time I am equally anxious to do anything that you may suggest or require?

I telegraphed Mr. Schwab that I would call the matter to the attention of the committee, suggesting that he could submit a written statement for the present and be examined when he came back later.

Mr. Schwab sent this telegram, perhaps, before he received my wire:

I sent you a telegram last night asking the privilege of appearing before your committee upon my return rather than submit a written statement. I am sure it would be very much better in every way, and assume, after talking to some of the others about it, that you agree in this view, and hence I am not sending you the statement; but if you insist on my doing so, I will transmit it to you before I leave to-morrow. Kindly telegraph me your wishes.

Senator VARDAMAN. He has gone to Europe?

The CHAIRMAN. He had to go. I also received this telegram from Mr. Schwab, in reply to my wire:

I thank you for your wire. Circumstances are such that I am compelled now to leave for Europe. In justice to the Shipping Board, the Nation, and all concerned, I should be given an opportunity of appearing before your honorable committee to make a statement, which I should make and which I very much desire to make. I hope to return on or before the 1st of February, and I trust you will, in justice to all concerned, keep your investigations and hearings upon this question open until I return, so that I can come before you and make a full statement in reference to this entire situation.

Those are the telegrams I received from Mr. Schwab, and I thought the committee ought to know about the whole matter.

Will it suit Mr. Piez to appear at half-past 2, when we can go on?

Mr. PIEZ. Yes. I have certain answers to questions that were asked that I will pass over to the stenographer.

(Thereupon, at 12.30 o'clock p. m., the committee took a recess until 2.30 o'clock this afternoon.)

AFTER RECESS.

The committee reassembled at 2.30 o'clock p. m., pursuant to recess.

The CHAIRMAN. The committee will come to order. Mr. Piez, I think we are ready to go ahead. I do not know whether you had finished the last question or not.

Mr. PIEZ. I want to offer for the record—I told Senator Lenroot that we wanted to present a digest of our contract with the shipbuilding companies, so as to answer all of the points he raised in connection with it. Then I have certain other answers to questions that were asked at the last meeting.

Senator LENROOT. In that connection, will you also put into the record the contracts of all of your investment yards?

Mr. PIEZ. Yes, sir.

Senator LENROOT. Or investment advances in all yards, I mean.

Mr. PIEZ. The advances made?

Senator LENROOT. Yes; and terms of repayment.

The CHAIRMAN. Was there something that you wanted to put in there?

Mr. PIEZ. No; I will present here the reports on marine railways and dock facilities, as that is a question, I think, which Senator Vardaman raised; the several questions asked by Senator Johnson comparing the purchase of real estate at Hog Island and the cost of the celebration at Hog Island.

Senator JOHNSON. What was it?

Mr. PIEZ. $38,000. I have the details of that, Senator.

Senator VARDAMAN. Did the Government pay that?

Mr. PIEZ. Yes.

Senator JONES. What were the principal items in that; just the principal ones?

Mr. PIEZ. The preparation of stands and the putting up of fences. I have it right here:

| | |
|---|---|
| Stands, tables, fencing | $16,384.[illegible] |
| Decorations | 7,917.[illegible] |
| Commissary | 5,724.[illegible] |
| Invitations | 6,764.[illegible] |
| Transportation | 1,114.[illegible] |
| Miscellaneous | 426.[illegible] |
| Total | 38,333.[illegible] |

Senator JOHNSON. When you say "invitations," that means lithographing of the invitations, I assume?

Mr. PIEZ. I presume so, Senator; yes.

Senator VARDAMAN. Was that the launching of the first ship?

Mr. PIEZ. Yes.

Senator JOHNSON. Were the men given a holiday on that day?

Mr. PIEZ. Just for the two or three hours that it took to do the launching.

Senator JOHNSON. Didn't they lay off all the men substantially half a day?

Mr. PIEZ. I don't know as to that. I think not, Senator.

Senator JOHNSON. If it was so, it would be a considerable item of itself, would it not?

Mr. PIEZ. Yes, sir. The launching took place at about noon. I think it was an occasion that should have been celebrated, Senator. I think it should have been celebrated for the moral effect it had.

Senator JOHNSON. Moral effect on whom?

Mr. PIEZ. Both on our own people and on our enemies, that this vast enterprise had been put into effect, and that production had begun.

Senator JOHNSON. Do you think, Mr. Piez, that the moral effect was quite the same in launching a ship before it was ready to be launched?

Mr. PIEZ. We didn't advertise the fact at that time that it was not ready to launch. We expected it to be ready.

Senator JOHNSON. It was perfectly obvious that it would be ascertained, wasn't it? The moral effect certainly would be lost and then some, wouldn't it, when they ascertained that the ship wasn't fit to be launched?

Mr. PIEZ. Well, it could be launched—except that it delayed the completion at the wet basin.

Senator VARDAMAN. Mr. Piez, did you ever ascertain the additional cost in the completion of the ship that resulted from the early launching?

Mr. PIEZ. That would be a rather difficult analysis to make. I have got a letter here concerning it. Admiral Bowles states this:

In response to the question asked as to the defects which the *Quistconck* developed after launching and which delayed its final completion, I beg to say that in order to comply with the launching date of the *Quistconck*, arranged some time in advance, it was necessary to launch the ship before testing oil and water tanks, except so far as related to the skin of the vessel. It was therefore necessary to test each of the 17 oil and water tanks after the vessel was overboard. These tanks must be tested separately with a head of water extending above the load water line, both as to the inner bottom and the sub-

divisions between the separate tanks. These tests involve, wherever unsuccessful, the pumping out of the water used for testing and the drying out of tanks before adjoining compartments can be tested.

This process, owing to its being the first ship constructed, constituted the last item of work completed on the *Quistconck*. In order not to delay the final delivery of the vessel the trial trip was authorized before the tank testing was entirely completed, in order to permit its completion at the same time as the completion of various sundry items which develop on the inspection at the time of trial.

None of the items of this character developed on the trial of the *Quistconck* were of more than usual detail, neither were any developed of any kind, affecting the integrity of the vessel. No defects were developed after the launching other than those which would have been discovered if the tank testing had proceeded while the vessel was on the ways.

In other words, there were no defects developed by launching itself.

That was in answer to the question whether serious defects had not developed after the launching took place.

Senator JOHNSON. I confess I don't quite follow that. As I understand it, the substance of what Admiral Bowles says is that these defects were defects which would have been apparent if examination had been made as usual before the launching, and that they were not unusual in ships after launching. Is that correct? Am I accurate in that?

Mr. PIEZ. I don't think—"none of the items of this character developed on the trial of the *Quistconck* were of more than usual detail." He refers there to the completion of the sundry items that had to be modified or changed as a result of the tests.

Senator JOHNSON. "Of more than usual detail" is rather indefinite to me. I am unable to follow the explanation. Do you know whether or not there was reriveting required in the ship after its launching?

Mr. PIEZ. No.

Senator JOHNSON. Do you mean that there was not or that you don't know?

Mr. PIEZ. There was additional riveting required after the launching, because the riveting had not progressed far enough. It was a premature launching because the riveting had not been carried far enough.

Senator JOHNSON. That is exactly as I understood it—that the ship was launched before the riveting was completed.

Mr. PIEZ. Not all of that riveting referred to the deck and the skin of the vessel above the water line.

Senator JOHNSON. You wouldn't ordinarily launch a vessel before the riveting had been done, would you?

Mr. PIEZ. No.

Senator JOHNSON. Then when the admiral speaks of "usual detail" there——

Mr. PIEZ (interposing). He doesn't speak of that in the connection that you seem to think he does.

Senator JOHNSON. I will be very glad to have you correct it.

Mr. PIEZ. He says:

In order not to delay the final delivery of the vessel the trial trip was authorized before the tank testing was entirely completed, in order to permit its completion at the same time as the completion of the various sundry items which developed on the inspection at the time of trial.

That is what he refers to.

None of the items of this character developed on the trial of the *Quistconck*—

That is, these various sundry items, not referring to the riveting of the tanks or testing of the tanks.

Some of the items of this character developed on the trial of the *Quistconck* were of more than usual detail.

That is, some of more than usual character were discovered.

Senator JOHNSON. I simply want to get at the character of the explanation. Does the admiral say anything about riveting that was required subsequently?

Mr. PIEZ. No; but he does say that it was prematurely launched.

Senator JOHNSON. All right. He doesn't say at all, that it ought not to have been launched at that time, and that a ship ought not to have been launched under the conditions existing in this ship at the time that it was launched?

Mr. PIEZ. Well, what he says is:

I beg to say that in order to comply with the launching date of the *Quistconck* it was necessary to launch the ship.

Senator JOHNSON. I think that is quite obvious, but the explanation—I am not critizing Admiral Bowles or anybody else in that regard, but it is rather shrouded in mystery to me. You have made it perfectly plain; the admiral has not in that particular explanation, I think.

Mr. PIEZ. Well, that is because he did not carry it far enough, probably.

Senator JOHNSON. Probably.

The CHAIRMAN. Do you have any detailed report made on that, Mr. Piez?

Mr. PIEZ. No; that is the report—this is in connection with the several items asked about.

The CHAIRMAN. I wondered whether that should go into the record or not.

Mr. PIEZ. There is an item here covering the additional expenditures at Hog Island which I submitted in detail.

Senator JOHNSON. The total being about what, please?

Mr. PIEZ. Something over $63,700,000 or $63,800,000.

Senator JOHNSON. How many other ships have been launched besides the *Quistconck*?

Mr. PIEZ. Twelve altogether.

Senator JOHNSON. Have been launched?

Mr. PIEZ. Yes.

Senator JOHNSON. Have any difficulties been experienced with any of them?

Mr. PIEZ. No; the ships are carried through a further state of completion now before being launched. We have had no repetition of that first experience.

Senator JONES. How long is it supposed to take to finish a ship now after it has been launched, to get it ready to go into service?

Mr. PIEZ. I think they are counting on something under 60 days. It probably will bring the thing down to about six weeks.

The CHAIRMAN. The turbines and gears for these ships are furnished by what company?

Mr. PIEZ. By the General Electric Co.

The CHAIRMAN. Are they found to be altogether satisfactory?

Mr. PIEZ. We haven't had any trouble with the gears and turbines there.

These papers are in answer to the several questions raised. The first was the statement prepared by Admiral Bowles covering the details of the $5,000,000 in excess of the estimate of $58,000,000; the proportion of the cost of the ship that the agents buy—details of the defects of the *Quistconck;* survey of the material for which commitments have been made as to the percentage that could be utilized in the completion of a lesser number of ships than that which had been intended. That is very general. We are still proceeding to get that in detail. That was in answer to Senator Lenroot's question.

And the report on the port facilities and the percentage of completion of the whole program as expressed in finished ships.

The CHAIRMAN. That may go into the record.

(The papers referred to are here printed in full, as follows:)

[Report No. 101016.]

*Percentage of completion of the steel ship program for all districts Dec. 15, 1918.*

REQUISITIONED VESSELS.

| Districts. | Total dead-weight tons on program. | Dead-weight tons completed Aug. 3, 1917. | Dead-weight tons completed Dec. 15. | Percentage of completion. |
|---|---|---|---|---|
| Northern Atlantic | 342,350 | 80,534 | 196,751 | 75.1 |
| Middle Atlantic | 290,020 | 113,533 | 150,677 | 85.3 |
| Southern | 13,000 | 2,100 | 10,130 | 92.9 |
| Southern Pacific | 304,500 | 74,508 | 212,558 | 92.4 |
| Northern Pacific | 571,994 | 157,950 | 405,687 | 97.9 |
| Great Lakes | 389,500 | 129,791 | 259,709 | 100.0 |
| Delaware River | 974,877 | 179,917 | 333,224 | 41.9 |
| Total | 2,886,241 | 738,333 | 1,568,736 | 72.9 |

CONTRACT VESSELS.

| Districts. | Total dead-weight tons on program. | Dead-weight tons completed Dec. 15. | Percentage of completion. |
|---|---|---|---|
| Northern Atlantic | 1,579,580 | 376,943 | 23.8 |
| Middle Atlantic | 662,800 | 150,467 | 22.5 |
| Southern | 618,200 | 60,564 | 9.7 |
| Southern Pacific | 1,764,500 | 466,118 | 26.4 |
| Northern Pacific | 2,036,600 | 557,572 | 27.3 |
| Great Lakes | 1,360,250 | 490,000 | 36.0 |
| Delaware River | 362,650 | 42,574 | 11.7 |
| Agencies | 1,925,000 | 248,264 | 12.8 |
| Japanese and Chinese | 285,850 | 12,292 | 4.3 |
| Total | 10,595,430 | 2,404,794 | 22.7 |

STATE OF COMPLETION OF PROGRAM.

| | | | |
|---|---|---|---|
| Requisioned vessels | 2,147,908 | 1,568,736 | 72.9 |
| Contract vessels | 10,595,430 | 2,404,794 | 22.7 |
| Total | 12,743,338 | 3,973,530 | 31.1 |
| Assuming the E. F. C. task to include that percentage of work which was completed on requisitioned vessels when they were commandeered, Aug. 3, 1917 (738,333 dead-weight tons): | | | |
| Requisitioned vessels | 2,886,241 | 2,307,069 | 79.9 |
| Contract vessels | 10,595,430 | 2,404,794 | 22.7 |
| Total | 13,481,671 | 4,711,863 | 34.9 |

Tugs building, 48; 30.8 per cent complete.

*Condition of steel-ship program, Jan. 1, 1919.*

[Report No. 201037. Dec. 31, 1918.]

| | |
|---|---|
| Keels laid: | |
| Number | 974 |
| Dead-weight tons | 6,481,138 |
| Vessels launched: | |
| Number | 591 |
| Dead-weight tons | 3,823,901 |
| Vessels delivered: | |
| Number | 455 |
| Dead-weight tons | 2,852,103 |
| Vessels on ways: | |
| Number | 382 |
| Dead-weight tons | 2,597,985 |
| Vessels in water: | |
| Number | 137 |
| Dead-weight tons | 980,000 |
| Anticipated keel layings to Apr. 1, 1919: | |
| Number | 314 |
| Dead-weight tons | 2,135,516 |

*Keels to be laid after Apr. 1, 1919.*

| Yard. | Number of keels. | Dead-weight tons |
|---|---|---|
| American International Shipbuilding Corporation | 93 | 719,500 |
| Submarine Boat Corporation | 88 | 446,600 |
| Merchants Shipbuilding Corporation | 35 | 315,000 |
| Federal Shipbuilding Co. | 4 | 38,400 |
| Newburgh Shipyards (Inc.) | 2 | 18,000 |
| Pensacola Shipbuilding Co | 6 | 54,000 |
| Merrill-Stevens Shipbuilding Corporation | 5 | 45,000 |
| Carolina Shipbuilding Corporation | 8 | 76,800 |
| Bayles Shipyards (Inc.) | 2 | 10,000 |
| Doullutt-Williams | 4 | 38,400 |
| | 247 | 1,761,700 |

*Keels to be laid after Apr. 1, 1919, for requisitioned vessels.*

| | |
|---|---|
| Number of keels | 39 |
| Dead-weight tons | 368,500 |

*Total program.*

| | Number. | Dead-weight tons. |
|---|---|---|
| Contract | 1,438 | 10,595,430 |
| Requisitioned | 393 | 2,745,681 |
| Total | 1,831 | 13,341,111 |

[Report No. 201036. Dec. 31, 1918.]

*Condition of steel-ship program Jan. 1, 1919.*

| District. | Keels laid. | | Vessels launched. | | Vessels delivered. | |
|---|---|---|---|---|---|---|
| | Number. | Dead-weight tons. | Number. | Dead-weight tons. | Number. | Dead-weight tons. |
| thern Atlantic | 137 | 989,840 | 64 | 458,475 | 30 | 229,425 |
| aware River | 97 | 767,088 | 66 | 486,316 | 52 | 386,618 |
| idle Atlantic | 58 | 510,610 | 37 | 311,710 | 33 | 271,010 |
| thern | 23 | 147,500 | 2 | 7,000 | ..... | ..... |
| thern Pacific | 116 | 1,071,250 | 73 | 685,000 | 47 | 439,600 |
| thern Pacific | 165 | 1,378,600 | 122 | 1,013,400 | 102 | 835,500 |
| at Lakes | 284 | 1,033,250 | 209 | 751,000 | 189 | 674,950 |
| ncies | 74 | 583,000 | 14 | 111,000 | 2 | 15,000 |
| Total | 954 | 6,481,138 | 587 | 3,823,901 | 455 | 2,852,103 |
| gs | 20 | ..... | 4 | ..... | ..... | ..... |
| Grand total | 974 | 6,481,138 | 591 | 3,823,901 | 455 | 2,852,103 |

| District. | Vessels on ways. | | Vessels in the water. | | Anticipated keel layings—January, February, March. | |
|---|---|---|---|---|---|---|
| | Number. | Dead-weight tons. | Number. | Dead-weight tons. | Ships. | Dead-weight tons. |
| thern Atlantic | 73 | 531,365 | 34 | 229,050 | 35 | 264,291 |
| aware River | 31 | 280,770 | 14 | 99,700 | 26 | 244,500 |
| idle Atlantic | 21 | 198,900 | 4 | 33,500 | 13 | 150,425 |
| thern | 19 | 140,500 | 2 | 7,000 | 24 | 194,400 |
| thern Pacific | 43 | 370,200 | 27 | 253,600 | 45 | 398,650 |
| thern Pacific | 36 | 322,000 | 20 | 185,100 | 54 | 475,800 |
| at Lakes | 75 | 282,250 | 20 | 76,050 | 117 | 407,450 |
| ncies | 60 | 472,000 | 12 | 96,000 | ..... | ..... |
| Total | 358 | 2,597,985 | 133 | 980,000 | 314 | 2,135,516 |
| gs | 24 | ..... | 4 | ..... | ..... | ..... |
| Grand total | 382 | 2,597,985 | 137 | 980,000 | 314 | 2,135,516 |

NOTE.—Summary of above appears on Form 201037.

UNITED STATES SHIPPING BOARD,
EMERGENCY FLEET CORPORATION,
*Philadelphia, January 1, 1919.*

. CHARLES PIEZ,
*Director General Emergency Fleet Corporation,*
*140 North Broad Street, Philadelphia, Pa.*

DEAR MR. PIEZ: Replying to your letter of December 20, regarding the questions asked by several members of the Senate Committee on Commerce at the t inquiry, I have prepared answers to these questions separately as follows:

1. To Senator Vardaman's question regarding the unexpended balance of approximately $5,000,000 for yard construction, I would state the following:

The figures given at the last inquiry showing that about $58,000,000 had been pended, and that the amount remaining unexpended was approximately ,000,000, making a total cost of over $63,000,000 were not quite correct, these ing the figures prepared several months ago. The actual expenditures on count of plant to November 30, 1918 ,amounted to $62,360,294.65. The estiited cost to complete the plant is $1,512,535 as per the detailed statement prered by the American International Shipbuilding Corporation, which is atched hereto and marked "Exhibit A."

In this connection I have prepared a short statement regarding the cost of e plant and its relation to previous statements for your information. This is tached hereto and marked "Exhibit B."

2. Regarding the percentage of the ship cost which is represented by s done by parties other than the American International Shipbuilding Cor tion, and the request to state separately the percentages in steel, engines, I have prepared a statement which is attached hereto and marked "Exhib

You will note that this covers all materials purchased for ships, incl fabricated steel, boilers, engines, machinery, and stores. The percentag total cost of the ships are given in detail for each group of ships and a general summary showing the percentage for the whole 180 ships.

3. In answer to Senator Johnson's questions regarding the cost to the U States of the celebration at the time of the launching of the *Quistconck* an reference to the defects which developed in the *Quistconck* after launchin the delay in its final completion, I have prepared the attached memoran marked "Exhibit D."

4. The questions as to the profits paid subcontractors on yard constru are answered in a schedule of subcontracts and equipment-rental con which has been prepared by the American International Shipbuilding Cor tion and which is attached hereto marked "Exhibit E." I have made a summary of the information shown on this schedule as I think the inform as submitted is too much in detail for your purpose.

Trusting this information will serve your purpose, I am,

Very truly, yours,

F. T. BOWLES,
*Assistant General Manag*
By NORMAN KER.

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EXHIBIT A.

*Summary estimated cost of work remaining to be done in accordance with b of Dec. 31.*

| | | |
|---|---|---|
| W. O. 23. | Shipways—group 1 | 8 |
| W. O. 24. | Shipways—group 2 | 2 |
| W. O. 25. | Shipways—group 3 | 2 |
| W. O. 26. | Shipways—group 4 | 2 |
| W. O. 27. | Shipways—group 5 | 3 |
| W. O. 28. | Derricks and towers | 41 |
| W. O. 46. | Yard handling equipment | 2 |
| W. O. 140. | Clearing and grading | 11 |
| W. O. 141. | Outfitting piers | 327 |
| W. O. 142. | Dredging | 15 |
| W. O. 143. | Administration group | 15 |
| W. O. 144. | Shop buildings | 7 |
| W. O. 145. | Shop equipment | 55 |
| W. O. 146. | Warehouses | 20 |
| W. O. 147. | Living quarters | 17 |
| W. O. 148. | Railroads | 136 |
| W. O. 149. | Electric lines | 22 |
| W. O. 150. | Air lines | 2 |
| W. O. 151. | Domestic water supply | 6 |
| W. O. 152. | Sewerage and drainage | 18 |
| W. O. 153. | Roads | 62 |
| W. O. 156. | Concrete warehouse | 77 |
| W. O. 157. | Additional equipment, P. and A. shops | 282 |
| W. O. 158. | Additional storage space | 242 |
| Total | | 1,512 |

EXHIBIT B.

MEMORANDUM REGARDING COST OF PLANT FOR HOG ISLAND SHIPYARD.

[Dec. 31, 1918.]

On April 1, 1918, an estimate was made of the total cost of the plant equipment as then planned. This estimate amounted to the sum of $55,000.

Since that date authorizations for additional expenditures under the sev headings of plant construction have been issued to the amount, on Nove 30, of $9,197,300, making total authorizations or estimates of total cost of construction, $64,197,300.

The estimate of April 1 was made for the purpose of setting some limit of pense for the completed plant and of requiring new authorizations for any ms which must be expended under the different headings of plant construction excess of the total amounts set down in that estimate.

Most of the additional authorizations cover either the necessary expenditures complete the work according to the original plans, or the cost of items which e properly a part of the original plans but which were not in all cases specially set forth in those plans.

The items which may be set down as new and probably entirely unconsidered ems in the original estimate are the following:

| | |
|---|---|
| ›ung Mens' Christian Association building and equipment | $102,000 |
| ılargement of outfitting piers and deepening of dredging at the piers and additional equipment thereon | 2,620,900 |
| ecords building | 160,000 |
| Total | 2,882,900 |

The amount charged to plant construction up to the end of November, 1918, $62,360,294.65. The estimated cost of uncompleted items is $1,512,535.

In addition to the amounts given above there are bills payable now due or to come due, amounting to approximately $2,000,000, which have not yet been stributed on account of failure to reach a full and final agreement between e parties affected.

EXHIBIT C.

*nerican International Shipbuilding Corporation—Statement portion of ship costs covered by subcontracts or outside purchases.*

| | Cost. | Approximate per cent of total cost of ships. |
|---|---|---|
| A ships: | | |
| Fabricated steel | $16,225,000 | 19.5 |
| Miscellaneous steel fittings, etc | 1,005,000 | 1.2 |
| Boilers | 4,527,000 | 5.5 |
| Turbines | 5,194,000 | 6.3 |
| Auxiliary machinery | 4,176,000 | 5.0 |
| General equipment | 7,986,000 | 9.6 |
| Stores | 1,887,000 | 2.3 |
| Total | 41,000,000 | 49.4 |
| B ships: | | |
| Fabricated steel | 35,320,000 | 19.4 |
| Miscellaneous steel fittings, etc | 2,312,000 | 1.3 |
| Boilers | 9,821,000 | 5.5 |
| Turbines | 16,283,000 | 9.2 |
| Auxiliary machinery | 6,500,000 | 4.0 |
| General equipment | 20,733,000 | 11.8 |
| Stores | 5,031,000 | 3.0 |
| Total | 96,000,000 | 54.2 |
| A ships: | | |
| Fabricated steel | 21,050,000 | 21.4 |
| Miscellaneous steel fittings, etc | 1,533,000 | 1.6 |
| Boilers | 4,957,000 | 5.0 |
| Turbines | 6,091,000 | 6.1 |
| Auxiliary machinery | 6,536,000 | 6.7 |
| General equipment | 10,583,000 | 10.7 |
| Stores | 3,250,000 | 3.3 |
| Total | 54,000,000 | 54.8 |
| mmary of 180 ships: | | |
| Fabricated steel | 72,592,000 | 20.2 |
| Miscellaneous steel fittings, etc | 4,859,000 | 1.4 |
| Boilers | 19,305,000 | 5.4 |
| Turbines | 27,568,000 | 7.7 |
| Auxiliary machinery | 17,212,000 | 4.8 |
| General equipment | 39,302,000 | 10.9 |
| Stores | 10,168,000 | 2.8 |
| Total | 191,000,000 | 53.2 |

EXHIBIT D.

UNITED STATES SHIPPING BOARD,
EMERGENCY FLEET CORPORATION,
*Philadelph*

In reply to the question asked by Senator Johnson, the following is a s mary of the expense incurred in connection with the launching ceremonie the *Quistconck*.

| | |
|---|---|
| Stands, tables, fencing | $16,38 |
| Decorations | 7,91 |
| Commissary | 5,72 |
| Invitations | 6,70 |
| Transportation | 1,11 |
| Miscellaneous | 42 |
| Total | 38,33 |

The sum of $38,333.07 is charged through overhead against the first 5 ships, making a charge per ship of $766.66.

In response to the question asked as to the defects which the *Quist* developed after launching and which delayed its final completion, I beg to that in order to comply with the launching date of the *Quistconck*, arra some time in advance, it was necessary to launch the ship before testin and water tanks except so far as related to the skin of the vessel. It therefore necessary to test each of the 17 oil and water tanks after the ves was overboard. These tanks must be tested separately with a head of w extending above the load water line, both as to the inner bottom and the s divisions between the separate tanks. These tests involve, wherever unsuc ful, the pumping out of the water used for testing and the drying out of t before adjoining compartments can be tested.

This process, owing to its being the first ship constructed, constituted last item of work completed on the *Quistconck*. In order not to delay final delivery of the vessel the trial trip was authorized before the tank tes was entirely completed, in order to permit its completion at the same tim the completion of various sundry items which develop on the inspection a time of trial.

None of the items of this character developed on the trial of the *Quist* were of more than usual detail, neither were any developed of any kind a ing the integrity of the vessel. No defects were developed after the laun other than those which would have been discovered if the tank testing proceeded while the vessel was on the ways.

In other words, there were no defects developed by the launching itself

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SUMMARY OF EXHIBIT "E."

UNITED STATES SHIPPING BOARD,
EMERGENCY FLEET CORPORATION,
*Philadelph*

*Subcontracts on plant construction.*

| Cost. | Amount. | Fee, included in cost. | Equipment rental, included in cost. | Per of |
|---|---|---|---|---|
| Fee contracts | $7,863,466 | $408,344 | $176,914 | |
| Lump-sum contracts | 3,049,839 | | | |
| Equipment rental contracts | 1,772,678 | | | |
| | 12,685,983 | | | |

The percentage of profit on lump-sum contracts or accruing to owners equipment under rental contracts can not be determined.

[American International Shipbuilding Corporation, agent United States Shipping Board Emergency Fleet Corporation.]

HOG ISLAND, PA., *January 1, 1919.*

SUBCONTRACTS—PLANT.

Admiral F. T. BOWLES,
*Assistant General Manager, United States Shipping Board, Emergency Fleet Corporation, Medical Arts Building, Philadelphia, Pa.*

DEAR SIRS: I am inclosing herewith a list of all subcontractors on plant construction, also a list of such of these as were on a fee basis. These lists show the original estimate of the cost of the work, the fee paid or to be paid, and the rental of equipment furnished. The fee and rental are lumped together in the contracts.

There is also inclosed an index of subcontractors showing the nature of the work done.

The above information is to be substituted for that sent Mr. Ker in our letter of December 27.

Yours, very truly,

M. C. BRUSH, *President.*

| | Estimated cost of work. | Fee. | Estimated rental of equipment. |
|---|---|---|---|
| PLANT CONTRACTORS. | | | |
| 1. Ulen Contracting Co | $751,601 | $34,612 | |
| 2. Jarrett Chambers Co | 841,000 | 56,891 | $10,686 |
| 3. Snare & Triest | 865,000 | 40,889 | 9,666 |
| 4. Hugh Nawn | 823,000 | 35,713 | 10,416 |
| 5. Raymond Concrete Pile Co | 555,600 | 18,790 | 22,710 |
| 6. Bates & Rogers | 1,170,000 | 46,623 | 11,910 |
| 7. American Dredging Co | 548,008 | | |
| 8. James Smythe Plumbing & Heating Co | 192,000 | 17,500 | |
| 9. Canal Construction Co. 9, 9A, 9B | 200,000 | 10,000 | 70,289 |
| 10. Arthur McMullen Co | 681,000 | 33,867 | 10,886 |
| 11. American Dredging Co | 205,000 | | |
| 12. Delaware Dredging Co | 159,351 | | |
| 13. Manwaring & Cummins | 18,460 | 1,846 | |
| 14. Holbrook, Cabot & Rollins (cancellation) | 157,318 | 25,000 | 30,351 |
| 15. Bates & Rogers | 428,600 | 31,480 | |
| 16. M. W. Kellogg | 313,000 | 9,500 | |
| 17. Manwaring & Cummins | 95,000 | 3,114 | |
| 18. Snare & Triest | 15,035 | | |
| 19. Cummins Structural Concrete Co | 10,839 | | |
| 20. Delaware County Electric Co | 165,662 | | |
| 21. C. Albert Kuehnle | 120,000 | 9,170 | |
| 22. American Hoist & Derrick Co | 891,225 | | |
| 23. American Hoist & Derrick Co | 863,950 | | |
| 24. Manwaring & Cummins | 36,500 | 2,752 | |
| 25. American Dredging Co | 229,729 | | |
| 26. McA Concrete Pile Co | 52,387 | 1,800 | |
| 27. Manwaring & Cummins | 363,000 | 18,112 | |
| 28. Hugh Nawn | 55,669 | | |
| 29. General Electric Co | 800 | | |
| 30. Ray Concrete Pile Co | 8,463 | | |
| 31. Geo. W. Gormley | 2,930 | | |
| 32. Bates & Rogers | 200,000 | 10,685 | |
| 33. Southern Transportation Co | 54,112 | | |
| 34. Southern Transportation Co | 12,441 | | |
| 35. Smith & Terry (Inc.) | 66,933 | | |
| 36. Smith & Terry (Inc.) | 20,175 | | |
| 37. Cook Cummer Steamship Co | 133,466 | | |
| 38. Southern Transportation Co | 1,304 | | |
| 39. Atlantic Refining Co | 30,039 | | |
| 40. Savannah & New York Transportation Co | 134,492 | | |
| 41. Savannah & New York Transportation Co | 51,419 | | |
| 42. Cook Cummer Transportation Co | 89,214 | | |
| 43. Fred Linderman | 54,000 | | |
| 44. City of Philadelphia | | | |
| 45. Manwaring & Cummins | 18,197 | | |
| 46. American Dredging Co | 628,053 | | |
| 47. William Johnson Co | | | |
| 48. Northern Transportation Co | 4,921 | | |
| 49. J. N. Stetson | 3,181 | | |
| 50. B. S. Cronin | 6,983 | | |
| 51. J. N. Stetson | 2,076 | | |

| | Estimated cost of work. | Fee. | Estimated rental of equipment. |
|---|---|---|---|
| **PLANT CONTRACTORS—continued.** | | | |
| 52. J. N. Stetson | $2,824 | | |
| 53. J. N. Stetson | 304 | | |
| 54. J. N. Stetson | 3,240 | | |
| 55. Moran Towing & Transportation Co. | 2,150 | | |
| 56. J. N. Stetson Co. | 2,384 | | |
| 57. John Swenson | 3,240 | | |
| 58. Ed. Tompkins | 7,204 | | |
| 59. Toole & Sundelin | 8,455 | | |
| 60. Chew Bros. | 11,000 | | |
| 61. Jacksonville Traction Co. | 4,375 | | |
| 62. H. H. Jenning & Co. | 8,400 | | |
| 63. L. F. Shoemaker | 57,348 | | |
| 64. H. A. McCleman | 48,777 | | |
| 65. H. H. Jenning | 3,600 | | |
| 66. F. H. McDonald | 35,682 | | |
| 67. Philadelphia Steam Heating Co. | 155,867 | | |
| | 12,685,983 | $408,344 | $176,914 |
| **FEE CONTRACTS.** | | | |
| 1. Ulen Contracting Co. | 751,601 | 34,612 | |
| 2. Jarrett Chambers Co. | 841,000 | 56,891 | 10,686 |
| 3. Snare & Triest | 865,000 | 40,889 | 9,666 |
| 4. Hugh Nawn | 823,000 | 35,713 | 10,416 |
| 5. Raymond Concrete Pile Co. | 555,600 | 18,790 | 22,710 |
| 6. Bates & Rogers | 1,170,000 | 46,623 | 11,910 |
| 8. Jas. Smyth Plumbing & Heating Co. | 192,000 | 17,500 | |
| 9. Canal Construction Co. | 200,000 | 10,000 | 70,289 |
| 10. Arthur McMullen Co. | 681,000 | 33,867 | 10,888 |
| 13. Manwaring & Cummins | 18,460 | 1,846 | |
| 14a. Holbrook Cabot & Rollins | 157,318 | 25,000 | 30,351 |
| 15. Bates & Rogers | 428,600 | 31,480 | |
| 16. M. W. Kellogg & Co. | 313,000 | 9,500 | |
| 17. Manwaring & Cummins | 95,000 | 3,114 | |
| 21. C. Albert Kuehne | 120,000 | 9,170 | |
| 24. Manwaring & Cummins | 36,500 | 2,752 | |
| 26. McArthur Concrete Pile Co. | 52,387 | 1,800 | |
| 27. Manwaring & Cummins | 363,000 | 18,112 | |
| 32. Bates & Rogers | 200,000 | 10,685 | |
| Total | 7,863,466 | 408,344 | 176,914 |

## *Index of contracts.*

| Number. | Name of contractor. | Work. | Pay basis. |
|---|---|---|---|
| 1 | Ulen Contracting Co. | Sewer, water and fire protection | Fee. |
| 2 | Jarrett Chambers Co. | Shipways—Group 3 | Do. |
| 3 | Snare & Triest | Shipways—Group 1 | Do. |
| 4 | Hugh Nawn | Shipways—Group 4 | Do. |
| 5 | Raymond Concrete Pile Co. | Shipways—Group 2 | Do. |
| 6 | Bates & Rodgers | Dike and trackwork | Do. |
| 7 | American Dredging Co. | Lease of 4 dredges | Rental. |
| 8 | Jas. Smyth Plumbing & Heating Co. | Plumbing and heating | Fee. |
| 9 | Canal Construction Co. | Dredging and removal of stone dike. | Do. |
| 9a | do. | Rental of equipment | Rental. |
| 9b | do. | do. | Fee. |
| 10 | Arthur McMullen Co. | Shipways—Group 5 | Do. |
| 11 | American Dredging Co. | Dredging—Wet basin | Unit cost. |
| 12 | Delaware Dredging Co. | Lease of dredges | Rental. |
| 13 | Manwaring & Cummins | Shuttle line connection | Fee. |
| 14a | Holbrook, Cabot & Rollins | Wet basin piers | Do. |
| 15 | Bates & Rodgers | Timber cribs | Do. |
| 16 | M. W. Kellogg Co. | High-pressure air piping | Do. |
| 17 | Manwaring & Cummins | Ninety-fourth Street—Slag road | Do. |
| 18 | Snare & Triest | Piling for foundations | Fee and unit cost. |
| 19 | Cummings Structural Concrete Co. | Lease of 12 pile drivers | Rental, fee, and unit cost. |
| 20 | Delaware County Electric Co. | Temporary power | Unit cost. |
| 21 | C. Albert Kuehnle | Painting | Fee. |
| 22 | American Hoist & Derrick | Electric hoists | Unit cost. |
| 23 | do. | Derrick fittings | Do. |
| 24 | Manwaring & Cummins | Temporary track | Do. |

*Index of contracts*—Continued.

| Number. | Name of contractor. | Work. | Pay basis. |
|---|---|---|---|
| 25 | American Dredging Co. | Lease of dredges. | Rental. |
| 26 | McArthur Concrete Pile Co. | Lease of pile drivers. | Rental, fee, and unit cost. |
| 27 | Manwaring & Cummins. | Passenger and freight railroad. | Fee. |
| 28 | Hugh Nawn Construction Co. | Lease of dredges. | Rental. |
| 29 | General Electric Co. | Lease of transformers. | Do. |
| 30 | Raymond Concrete Pile Co. | Piling for foundations. | Rental and unit cost. |
| 31 | George W. Gormley. | Lease of lighter. | Rental. |
| 32 | Bates & Rodgers. | Grading and hauling cinders. | Fee. |
| 33 | Southern Transportation Co. | Lease of barges. | Rental. |
| 34 | do. | Charter of tug Augustine. | Do. |
| 35 | Smith & Terry (Inc.). | Charter of three barges. | Do. |
| 36 | do. | Charter of tug Underwriter. | Do. |
| 37 | Cook Cummer Steamship Co. | Charter of five barges. | Do. |
| 38 | Southern Transportation Co. | Charter of tug Virginian. | Do. |
| 39 | Atlantic Refining Co. | Fuel oil. | Unit cost. |
| 40 | Savannah & New York Transportation Co. | Charter of eight barges. | Rental. |
| 41 | do. | Charter of tug W. B. Keene. | Do. |
| 42 | Cook Cummer Steamship Co. | Charter of tug Wellington. | Do. |
| 43 | Fred Linderman. | Charter of steamer M. Olson. | Do. |
| 44 | City of Philadelphia. | Road material, ballast, etc. | |
| 45 | Manwaring & Cummins. | Hauling road material. | Unit cost. |
| 46 | American Dredging Co. | Miscellaneous dredging. | Unit cost. |
| 47 | William Johnson Co. | Charter of barge Altamaha. | Rental. |
| 48 | Northern Transportation Co. | Charter of barge Northern 29. | Do. |
| 49 | J. N. Stetson Co. | Charter of steam hoist Vim. | Do. |
| 50 | B. S. Cronin Co. | Charter of pile driver and scow. | Do. |
| 51 | J. N. Stetson. | Charter of lighter Albatross. | Do. |
| 52 | do. | Charter of tug Roman. | Do. |
| 53 | do. | Charter of lighter Warner. | Do. |
| 54 | do. | Charter of tug Wawenoc. | Do. |
| 55 | Moran Towing & Transportation Co. | Charter of pile driver. | Do. |
| 56 | J. N. Stetson. | Charter of lighter Hanold. | Do. |
| 57 | John Swenson. | Charter of pile driver 2-11. | Do. |
| 58 | Ed Tompkins. | Charter of scow and pile driver. | Do. |
| 59 | Toole & Sundelin. | Charter of derrick boat and pile driver. | Do. |
| 60 | Chew Bros. | Rebuilding levee, Darby Creek. | Fee. |
| 61 | Jacksonville Traction Co. | Charter of barge Southeast. | Rental. |
| 62 | H. A. Jenning Co. | Charter of lighter T. T. No. 25. | Do. |
| 63 | L. F. Shoemaker. | 100-ton bridge crane. | Unit cost. |
| 64 | H. A. McCleman. | Horses and equipment. | Rental. |
| 65 | H. H. Jenning Co. | Charter of lighter T. T. No. 26. | Do. |
| 66 | Frank H. McDonald. | Horses and equipment. | Do. |
| 67 | Philadelphia Steam Heating Co. | Steam heating systems. | Fee. |

UNITED STATES SHIPPING BOARD,
EMERGENCY FLEET CORPORATION,
*Philadelphia, Pa., December 31, 1918.*

From: Division of shipyard plants.
To: Mr. Charles Piez, director general.
Subject: Report of dry dock and marine-railway contracts.

We submit for your information a report covering the main contract provisions, dates of contract, authorization, and construction progress for each dry dock and marine railway contract of the Emergency Fleet Corporation.

MARINE RAILWAY CONTRACTS.

The maturity date for this first group of marine railway contracts is six months after the formal declaration of peace with the German Empire. No amortization scheme has been adopted for this group, and in all cases the contractor is required to pay interest at 6 per cent on the moneys borrowed.

*Contract No. 1.*—Henderson Shipbuilding Co., Mobile, Ala. (Contract dated Mar. 25, 1918.) The contractor agrees to furnish site and steam power, and to defray cost in excess of amount loaned. The borrower has been loaned $100,000. Security for the repayment of this loan is in the form of a bond and first mortgage on the railway and site. Docking charges against vessels owned by the United States may be credited on repayment of loan. The final payment of the principal of the loan will be three years after the maturity date. This railway was placed in operation November 7, 1918.

*Contract No. 2.*—Newcomb Life Boat Co., Hampton, Va. (Contract dated Mar. 26, 1918.) This contract, due to inefficiency on part of contractor was canceled October 2, 1918.

*Contract No. 3.*—Crowninshield Shipbuilding Co., South Somerset, Mass. (Contract dated Apr. 9, 1918.) The contractor agrees to furnish site and defray cost of excavating and dredging and cost in excess of amount loaned. The contractor has been loaned $100,000. Security for the repayment of this loan is in the form of a note of the contractor and first mortgage upon the railway and substantial part of contractor's plant. The docking charges against vessels owned by the United States may be credited on repayment of loan. Final payment shall be due three years after maturity date. Ten thousand dollars is to be paid six months after completion of the railway. This railway was placed in operation November 28, 1918.

*Contract No. 4.*—Beaumont S. B. & D. D. Co., Beaumont, Tex. (contract dated Mar. 30, 1918). No money was loaned to the contractor for the completion of this contract. An agreement was made that in case of failure of the contractor to complete work, the contract may be declared forfeited. This railway was placed in operation November 30, 1918.

*Contract No. 5.*—Cumberland Shipbuilding Co., Portland, Me. (contract dated Apr. 17, 1918). The contractor agrees to furnish site and defray cost in excess of amount loaned and cost of dredging and grading. The contractor has been loaned $100,000. The security for the repayment of this loan is in the form of a bond of the contractor and first mortgage on railway site and substantial portion of contractor's plant. Docking charges against vessels owned by the United States may be credited on repayment of loan. Final payment shall be due five years after the maturity date. This railway was placed in operation November 21, 1918.

*Contract No. 6.*—Tampa Dock Co., Tampa, Fla. (contract dated Apr. 17, 1918) The contractor furnishes site and agrees to build a machine shop at its own expense, and bears at its own expense cost of dredging and piling, and any other cost in excess of amount loaned. The contractor has been loaned $100,000. Security for the repayment of this loan is in the form of a bond of the contractor and first mortgage upon railway machine shop, and site. Final payment shall be due three years after maturity date. This railway is 54 per cent complete. The work is reported as progressing without delays, and, although considerably behind schedule, the contractor is making fair progress. It is estimated that this railway will be ready for operation March 30, 1919.

*Contract No. 7.*—National S. B. & D. D. Co. (R. A. Salas), Savannah, Ga. (contract dated Mar. 23, 1918). The contractor agrees to furnish site and defray cost of excavating, dredging, bulkhead and pier work, and cost in excess of amount loaned. The contractor has been loaned $100,000. The security for the repayment of this loan is in the form of note or bond secured by mortgage or deed of trust, to constitute first lien on premises and all improvements now or hereafter erected, including the railway, piers, etc. Final payment shall be due three years after the maturity date. Work on this railway has been suspended (by the contractor) pending financial readjustment. The contractor has requested an additional loan of $96,000. It has been recommended by the division of shipyard plants that this loan shall not be granted. The contractor has resumed work by his own volition and the railway is reported as 68 per cent complete. In case the contractor fails to complete work to the satisfaction of the Fleet Corporation this contract will be canceled. It is estimated that this railway will be ready for operation March 1, 1919.

*Contract No. 8.*—Terry & Brittain, Jacksonville, Fla (contract dated June 18, 1918). The contractor furnishes site and cost in excess of amount loaned. The contractor has been loaned $75,000. Security for the repayment of this loan is in the form of a bond executed by both Terry and Brittain and secured by a mortgage upon the site of the marine railway. Fifty per cent of the net earnings from the marine railway is applied to the payment of the principal and interest. The final payment shall be due 10 years after the maturity date. This railway is 43 per cent complete. It is estimated to be ready for operation March 30, 1919.

*Contract No. 9.*—Barnes & Tibbitts, Alameda Cal. (contract dated May 22, 1918). The contractor agrees to furnish site and defray cost in excess of the moneys loaned by the Emergency Fleet Corporation. Amount invested by contractor, exclusive of site, to be not less than $25,000. The borrower has been loaned $75,000 for this contract. Security for the repayment of this loan is in the form of a bond of the contractor and mortgage on shipyard and railway

subject only to prior mortgage of $35,000 equity of contractor, not including new construction work estimated to be at least $500,000. Fifty per cent of the new earnings of the railway and repair plant shall be used to repay principal of the loan and interest. This railway is at present 30 per cent complete. Due to late delivery of material and unsatisfactory condition of material upon arrival, this railway is progressing unsatisfactorily. Efforts have been made to expedite the delivery of material preventing progress, and the labor force on the work will be increased, so that satisfactory progress may be expected in the future. This railway is estimated to be complete, ready for operation, April 15, 1919.

*Contract No. 10.*—Barnes & Tibbitts, Alameda, Cal. (contract dated May 22, 1918.) The contract provisions are the same for this contract as for contract No. 9, with the exception of the loan. The loan in this case is $35,000. This railway was placed in operation November 18, 1918.

*Contract No. 12.*—American Dredging Co., Camden, N. J. An agreement has been made with this firm to expedite deliveries of material for their railway.

NOTE.—Contracts Nos. 1 to 9, inclusive, are all 2,500-ton marine railways. Contract No. 10 calls for the completion of a 4,000-ton railway, and contract No. 12 covers a 2,000-ton marine railway.

DRY DOCKS.

*Contract No. 1.*—Alabama D. D. & S. B. Co., Mobile, Ala. (contract dated Jan. 2, 1918, for the construction of a 10,000-ton dry dock). Contractor furnishes site The amount of loan is $560,000, security for which is in the form of a bond of company and first mortgage on dry dock and substantial portion of adjacent site. Docking charges against vessels owned by the United States credited upon payment of loan. Final payment due four yeas after maturity date. Absolute write-off of from 33⅓ to 38⅓ per cent, according to when maturity date occurs. This dock is at present 28 per cent complete. It is estimated that this dock will be complete and ready for operation March 1, 1919. The work to date has been unsatisfactory, due to difficulties encountered in doing the dredging and excavation.

*Contract No. 3.*—Bethlehem Shipbuilding Corp. (Ltd.), Sparrows Point, Md. (contract dated Jan. 15, 1918, for the construction of a 20,000-ton dock). The contractor agrees to furnish site and cost in excess of sums loaned. The contractor has been loaned $1,250,000. This loan is repayable in five equal annual installments, commencing December 31, 1918. Security for the repayment of this loan is furnished in the form of a bond of company and first mortgage on floating dry dock. Additional security is given in the form of a guaranty of Bethlehem Steel Corporation. No write-off has been provided for this contract. The dry dock is reported to date as being 97 per cent complete. It is estimated that it will be in operation January 1, 1919. Its progress is satisfactory.

*Contract No. 4.*—Beaumont S. B. & D. D. Co., Beaumont, Tex. (contract dated Jan. 31, 1918, for 8,000-ton dry dock). The contractor agrees to furnish site and cost in excess of amount loaned The amount loaned to the contractor is $350,000. Security furnished for the repayment of this loan is in the form of a bond of company and first mortgage on floating dry dock and site. Docking charges against vessels owned by the United States credited upon payment of loan. Absolute write-off of 25⅓ to 33⅓ per cent, depending upon date of final payment. The final payment of the loan will be due four years after maturity date. This dock is at present 34 per cent complete. Due to the difficulty in obtaining material for the construction work, this dock's progress has been unsatisfactory. The Fleet Corporation is aiding Beaumont in expediting material deliveries. It is estimated that it will be complete and ready for operation May 1, 1919.

*Contract No. 5.*—Galveston Dry Dock & Construction Co., Galveston, Tex. (contract dated Mar. 9, 1918, for 10,000-ton dry dock). The contractor agrees to furnish site and cost in excess of amount loaned. The borrower has been loaned $675,000. Security for the repayment of this loan is in the form of a bond of company and first mortgage on leasehold interest and on dry dock, building, and improvements. Docking charges against vessels owned by the United States credited upon payment of loan. Absolute write-off of 40 per cent. This dock is reported at present date as being 59 per cent complete. Its progress is satisfactory, and it is estimated that it will be complete and ready for operation March 30, 1919.

*Contract No. 7.*—Jahncke Shipbuilding Corp., New Orleans, La. (contract dated July 19, 1918, for 10,000-ton dry dock). The contractor agrees to fur-

nish repair plant site and defray cost in excess of loan. The contractor has been loaned $700,000. Security for the repayment of this loan is in the form of a bond of borrower and first mortgage on site of dry dock and on repair plant. Seventy-five per cent of the net earnings of dry dock and repair plant applied against payment of loan. Contingent allowance not to exceed 30 per cent cost floating portion dry dock, nor in any event $210,000. This contract is reported to date as being 23 per cent complete. It is estimated that it will be complete and in operation by June 1, 1919. Its progress is satisfactory.

*Contract No. 8.*—Terry & Brittain, Jacksonville, Fla. (contract dated June 18, 1918, for the construction of a 6,000-ton dry dock. The contractor furnishes site and defrays cost in excess of amount loaned. The contractor has been loaned $597,000. Security for the repayment of this loan is in the form of a bond executed by both Terry and Brittain and first mortgage upon dry dock, repair plant, and leasehold. Fifty per cent of net earnings of dry dock, marine railway, and repair plant shall serve as additional security. Contingent allowance not to exceed 30 per cost floating portion of dry dock, nor in any event $123,000. The final payment of the principal of the loan will be 10 years after the maturity date. This railway is reported at present date as being 27 per cent complete. It is estimated that it will be complete and ready for operation June 15, 1919. Its progress is satisfactory.

*Contract No. 9.*—Terry & Brittain, Savannah, Ga. (contract dated June 18, 1918, for the construction of an 8,000-ton dry dock). The contractor agrees to furnish site and defray cost in excess of amount loaned. The contractor has been loaned $577,000. Security for the repayment of this loan is in the form of a bond executed by both Terry & Brittain and a mortgage on dry dock, repair plant, and site. Fifty per cent of the net earnings of the dry dock and repair plant applied for payment of loan shall serve as additional security. Absolute allowance of 40 per cent of cost of floating portion of dock, not exceeding $209,000. The final payment of the principal of the loan will be 10 years after the maturity date. This contract is reported as being 16 per cent complete at the present date. It is estimated that it will be complete and ready for operation by June 18, 1919. Its progress is unsatisfactory. The contractor reports that this unsatisfactory progress is due to delays caused by the late arrival of materials. The E. F. C. is making an effort to expedite deliveries of materials holding up progress on this work.

*Contract No. 10.*—Leary Construction Co., Norfolk, Va. (contract dated Aug. 27, 1918, for the construction of twin graving docks at Norfolk Navy Yard). The contractor agrees to pay one-half the cost in excess of a basic cost. Payment not to exceed $45,000. A refund is provided for not to exceed $45,000. The basic cost is $1,275,000. The contractor further agrees to furnish plant. The contractor furnishes a bond for $63,750. This contract is progressing satisfactorily and it is estimated that it will be completed on schedule time, 340 days after the contract date.

The contract with the Leary Construction Co. for the twin graving docks at Norfolk was approved by Secretary Daniels September 19 and by the Shipping Board November, 1918.

On August 22 a resolution was adopted by the United States Shipping Board approving the construction of 10 floating dry docks, one 20,000-ton, one 18,000-ton, and eight 10,000-ton floating dry docks.

On July 12 the contract division was authorized to make all negotiations for dry-dock and marine railway contracts, the division of shipyard plants serving in an engineering capacity and cooperating with the contract division. We are inclosing herewith a report of a conference on dry docks and marine railways giving the status of proposals and recommendations for contracts.

R. E. BAKENHUS,
*Assistant Manager, Division of Shipyard Plants.*

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CONFERENCE ON DRY DOCKS AND MARINE RAILWAYS IN OFFICES OF CONTRACT DIVISION, DECEMBER 26, 1918.

Present: M. D. Ferris, J. D. Myers, H. B. Weisse, H. B. Miller, Mr. Patterson (of Port and Harbor Facilities Commission).

*Port of Portland, Me.* Recommendation: One 10,000-ton floating dry dock.

*Negotiations.*—1. Mr. Swett stated last week that Mr. Merrill, of the chamber of commerce, had asked him not to submit a proposal, in anticipation of some other proposals from Portland.

*Port of Boston.* Recommendation: Five floating dry docks.

*Negotiations.*—1. Winnisimmet Shipyard Co. Mr. Evans indicated, on our recent trip to Boston, that they might be interested in a marine railway, but doubted their ability to get sufficient land for dry dock.

2. Richard T. Green Co. No proposition at present plant will be acceptable.

3. James L. Bryne. No formal proposal received. Bankers stated, on our recent trip, that they would not be in position to put in proposal for some time. Mr. Bryne stated to-day (over telephone) during the meeting that his proposition had been agreed to by the bankers and that he would proceed immediately to get up his plans, estimates, etc., and call in Philadelphia on the 28th and in Washington soon thereafter and see Mr. Carry.

4. Boston Dry Dock & Construction Co. Proposition was to have been received December 23. Expected shortly.

5. Atlantic Works. No proposition received.

6. Simpson's Patent Dry Dock Co. No proposal received. Mr. Baker stated that they would be interested only in securing a loan to purchase additional plant facilities.

*Port of New York.* 1. Weehawken Dry Dock Co. Awaiting result of appraisal being made by Division of Shipyard Plants. Awaiting Mr. Rodermond's choice of financial backers.

2. Johnson D. D. & S. B. Co. Have had several calls separately from Messrs. Grening and Olsen. Proposition lacks financial backing and proper organization.

3. Todd Shipyards Corporation. Five proposals in all received. No action taken pending advice from the Department of Justice.

4. W. & A. Fletcher Co. Mr. Fletcher states to-day on the telephone that he was waiting to make his decision as to financing the work himself until the revenue bill was passed. Work on constructing piers and bulkheads is understood to be in process.

5. Vulcan Iron Works. Awaiting solution of leases by the legal division. Comptroller's office having audit made of their books.

6. Manhattan Dock Co. Notification received from New York Transit & Terminal Co. to the effect that they claim title to the site, had used same for many years and had sold a portion. Have notified proposer that until satisfactory assurance of no adverse claim received consideration of proposal would be suspended.

7. Ramberg Iron Works. Awaiting their engineer's estimate of improvements. Details as to ownership of property under investigation. Awaiting evidence as to ability to use slip alongside or to make new slip in connection with "L" shaped dock.

8. Fraser, Brace & Co. No proposition yet received.

9. Standard Shipbuilding Co. Mr. Dickerson said proposition was being prepared.

10. Brooks-Scanlon Co. (S. J. Carpenter). Awaiting report of inspection from division of shipyard plants. The division of shipyard plants is investigating the cost of dredging and the width of channel opposite this proposer's plant.

11. E. D. Harrington & Co. No proposition yet received. Have written as to probable date.

Port of Philadelphia. 1. Port of Philadelphia Dry Dock Co. (J. H. J. McNally). Several people have called inquiring as to the proposition, with the idea of putting up the necessary capital. Otherwise, proposition lacks organization and financial backing.

2. Lincoln Shipbuilding & Drydock Co. Awaiting statement from the Foundation Co. of the extent to which they would provide the necessary capital. Awaiting report of investigation by the division of shipyard plants.

3. E. D. Harrington & Co. Have written as to when their proposition for Philadelphia will be received.

4. Horace K. Read. Some proposition may be received.

General.—Understand that several large bankers in Philadelphia are interesting themselves in the lack of dry-dock propositions.

Port of Baltimore. 1. H. E. Crook Co. Representatives of proposers are here to-day with further information. Proposition lacks efficient financial backing.

2. Union Shipbuilding Co. Awaiting report from division of shipyard plants. Proposition being investigated. Proposer will not proceed with the proposition unless they receive write off for war cost, and will not agree to repay more than the amount of the loan.

3. Bartlett Hayward Co. Understand proposal may be received from the Bartlett Hayward Co. for construction of dock on the north shore of the Patapsco River.

Port of Charleston. 1. Valk & Murdock Co. Awaiting answer from them as to their ability to proceed with loan of $425,000. Question of title to certain land under water and use of the beds of three closed streets being investigated.

At large.—Orders have been drawn for placing contracts for pontoons for the 20,000-ton floating dry docks and for three of the 10,000-ton dry docks.

MARINE RAILWAYS.

Port of Fall River.—Received to-day from port and harbor facilities commission a proposition submitted by Crowninshield Shipbuilding Co. for 3,200-ton marine railway.

Port of Newport News. 2,500-ton marine railway (formerly Newcomb Lifeboat Co.) Contract being drawn with Southern Shipyard Corporation.

Port of Brunswick. Recommendation, one 3,200-ton marine railway.

*Negotiations.*—1. Brunswick Marine Construction Co. Awaiting engineer's plan, estimate, etc. Property has been appraised. Site inspected last week by division of shipyard plants. Comptroller required subrogation of accounts and bills payable to Messrs. Smith & Taylor.

2. American Shipbuilding Co. Awaiting formal proposal, plans, and estimate. Some complication may be caused by the shallowness of property and extension beyond harbor line.

3. U. S. Maritime Corporation. Proposal expected this week.

Port of Astoria. Contract being drawn for 4,000-ton marine railway with Astoria Marine Iron Works.

MARINE RAILWAYS WHICH MAY BE RECOMMENDED BY PORT AND HARBOR FACILITIES COMMISSION.

Port of Providence. Marine Engineering & Dry Dock Co. Have submitted proposal.

Port of New York. Johnson Shipyards Corporation. Are now preparing proposition.

Port of Baltimore. 1. H. E. Crook Co. Proposal in, in connection with floating dry dock.

2. Union Shipbuilding Co. Proposal in, in connection with floating dry dock.

3. Frank Furst Co. Proposal expected.

Port of Norfolk (Newport News). 1. Proposition may be received from Greenleaf Johnson Lumber Co. for marine railway.

2. Proposition may be received from Warwick Machine Works, Newport News.

Senator JONES. What does your answer show as to that last statement? (Percentage of completion of the whole program as expressed in finished ships.)

Mr. PIEZ. 34.9 per cent of the total. That is, giving the ships in process their proper weight and expressing it all in completed ships.

Senator KENYON. Did you say 34.9?

Mr. PIEZ. Yes. In answer to your question, Senator, as to whether we had anything in our files developing the value of the Hog Island property and indicating whether an option had been secured at a materially lower price we haven't anything in our files, but we did find this confidential report that was made to the Senate committee and published by this committee which apparently covered some facts that were developed by a man by the name of Zeller, of Philadelphia. I think that covers substantially all of the points that you had in mind. Handing paper to Senator JOHNSON.

The CHAIRMAN. Do you want that to go into the record again, Senator?

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Senator JOHNSON. Not unless the committee desires it. I don't care to have it go in here. It is always accessible.

The CHAIRMAN. Yes.

Senator JONES. Well, is it treated as confidential?

Mr. PIEZ. It is so marked.

The CHAIRMAN. I remember that Senator Nelson and I were a subcommittee to hear this gentleman, and we did not know what his statement was to be or anything about it, you know. He said he had some information to give.

Senator JONES. But it is not to be treated now as confidential?

The CHAIRMAN. Oh, no.

Senator VARDAMAN. It was in answer to Senator Johnson's question. I didn't know but what it was confidential.

The CHAIRMAN. No; but at that time the suggestion was made by the committee that it would be well for some subcommittee or some member of this committee to see people who were interested in the hearings here and discuss with them what they had to submit to the committee before calling them before the whole committee; and Senator Nelson and I saw this gentleman and we took his statement, and we had it printed in that way without having it go into the hearing before the regular committee and become a part of the record.

Senator VARDAMAN. I understand, Mr. Piez, that is a matter with which you had nothing to do? That was all done before you came in?

Mr. PIEZ. Yes. We are having the Shipping Board files searched to see whether there are any letters there which pertain to this question.

Senator RANSDELL. I would like to ask Mr. Piez a few questions.

Mr. Piez, I want to know why you happened to select Hog Island as a site for a shipyard? It may have been done before you were connected with the Shipping Board or the Emergency Fleet Corporation. Was there any other site available for a big shipyard like that?

Mr. PIEZ. The statement in the files, I think, and the statement made to me, was that after a very careful survey of the Atlantic seaboard that was the only available site for a yard of those dimensions, for a yard to meet the requirements.

Senator RANSDELL. The only available site?

Mr. PIEZ. Yes.

Senator RANSDELL. Now, can you tell us why it was thought advisable to establish a yard of 50 ways? What were the controlling reasons for constructing such a large yard as that?

Mr. PIEZ. I don't know that I am in a position to answer that.

Senator JONES. I might suggest to the Senator that that was all gone into in the early part of the hearing.

Senator RANSDELL. Yes; I remember the testimony about that.

Senator VARDAMAN. Before Mr. Piez became connected with it.

Senator RANSDELL. Yes; I understand, and largely by Gen. Goethals, I believe. He was the man in charge of it at that time.

Mr. Piez, could you state what, in your judgment, has been the effect upon the people of this country and of the world of the construction of an immense yard like that? I have understood that it was by all odds the biggest shipyard in point of ways in the world;

that there is nothing comparable to it anywhere on earth. Is that a fact?

Mr. PIEZ. It is the largest shipyard we have any record of; yes.

Senator RANSDELL. What is the largest shipyard of which you have a record elsewhere in the world?

Mr. PIEZ. On the Clyde. I think. I have forgotten the number of ways. but it is perhaps one-third to one-quarter the size of the Hog Island yard.

Senator RANSDELL. Has the Hog Island yard been examined, so far as you know, by representatives of the various nations of the world, other than the enemy nations with whom we have been at war?

Mr. PIEZ. It has been the mecca of practically every commission that has come here from the other side. We have had many commissions there, many commissions who have visited it, and it has been the outstanding—I was going to say achievement; I think I can say achievement—of our entire shipbuilding program. It was a bold conception; it was conceived because of our tremendous need for ships; it was based on the theory that we could build a huge assembling yard with processes so simple that we could carry on those processes on a very large scale; that we could depend upon the manufacturing facilities away from the Atlantic coast line to furnish the material in fabricated form for assembly at that yard; and I think the very boldness of the conception and the very size of the undertaking made it an outstanding feature of our entire program, and certainly made it a thing that was talked about everywhere.

Senator VARDAMAN. Don't you think that it promised more than it ever fulfilled, Mr. Piez? People talked about the promises, but what do you think of the redemption of the promises?

Mr. PIEZ. Well, I think that ought to be looked at in the light of our needs if the war had continued another six or eight or nine months, or another year, as it was firmly believed it might, Senator. I think Hog Island will become a very big producer, and the mere fact that the war was suddenly terminated ought not to make us feel that the undertaking was wrong. I feel most distinctly that it was a tremendous asset, in reserve, just as a large army in preparation over here was an asset, and that if we had not had Hog Island, if we had not undertaken these fabricating yards and had not convinced both ourselves and our allies—and the enemy—that we were in a position to get out shipping in such quantities that we could conduct our part of the war successfully, the war might have continued longer. I feel it was a distinct asset in that respect, just as the fact that we had 2,000,000 men in camp here, though they were not on the firing line, not ready to be put on the firing line, was an asset.

Senator VARDAMAN. Don't you think that if the world had thought, or had any idea, that you would have had no ships produced at that plant by the 1st of January, 1919, that that would have encouraged them in the prosecution of the war?

Mr. PIEZ. Well, we were getting very well along, however, Senator, and if we had kept up the pressure there during November and December we would have been further along than we are at the present time.

Senator JOHNSON. Do I understand, Mr. Piez, that you are giving your unqualified approval to the mode in which Hog Island was constructed?

Mr. PIEZ. I don't think that was involved in the question, Senator.

Senator JOHNSON. No.

Mr. PIEZ. I am talking of the general conception.

Senator JOHNSON. Yes; but that conception could have been governmental, could it not, wholly?

Mr. PIEZ. Just what do you mean by that?

Senator JOHNSON. I mean do you approve of the conception by which private individuals may spend as much as they please in a conception of this sort and do what has been done at Hog Island?

Mr. PIEZ. Well, as I understand, the expenditure there was made under the approval of the Fleet Corporation.

Senator JOHNSON. Quite so; but nevertheless the expenditure was made, as these gentlemen assert, for speed without regard to the extent of the outlay and was in reality made by them——

Mr. PIEZ (interposing). Of course, we all considered speed the controlling factor during many months.

Senator JOHNSON. The point I want to get at is this—I may have misconstrued what you said—I want to know whether you approve of the mode of procedure by which private individuals may conduct an institution like Hog Island at the expense of the Nation and profit by it?

Senator RANSDELL. I would like to ask in connection with that if it isn't a fact that the Hog Island enterprise was conceived by the Nation and carried on under the instructions of the Nation?

Senator JOHNSON. Will you let me get an answer first, if you please, Senator?

Senator RANSDELL. Certainly. You broke into my line of questioning.

Senator JOHNSON. I beg pardon. I did not intend to.

Senator RANSDELL. Go ahead, Senator; I will wait until you get through.

Senator JOHNSON. Did you follow my question, Mr. Piez?

Mr. PIEZ. I was a little diverted.

Senator JOHNSON. I will withdraw the question until subsequently. I did not intend to interrupt you, Senator.

Senator RANSDELL. I was trying to develop a thought which came to me that this was a great object lesson to the nations of the world and probably had a magnificent moral effect upon them. You say it was a Mecca to which commissions from every country on earth came. It was the outstanding event or fact in connection with our shipping program. Is that correct?

Mr. PIEZ. Yes, sir.

Senator RANSDELL. Now, what effect did it seem to have on these commissions who came there when they saw Hog Island? How did they seem to be impressed by it, as well as you could get it? You must have met them and talked with them. You were in general charge, and I suppose you saw every one of them. How were they impressed?

Mr. PIEZ. I met most of them, I think. Most of them were impressed with the magnitude of the undertaking, with its completeness, and, I think, with its possibilities.

Senator RANSDELL. Was the impression a favorable or an unfavorable one?

Mr. PIEZ. It was all favorable.

Senator RANSDELL. Now, Mr. Piez, suppose we should have to abandon Hog Island—lose the money that we put into it—how would this Nation stand in regard to its financial loss or gain at the present time, in your judgment, from the Hog Island enterprise?

Mr. PIEZ. I don't think I quite understand that question, Senator.

Senator RANSDELL. Well, you say—I want to get it somewhat in detail—I have understood that it would be a very valuable ocean terminal to start with. How valuable would it be as an adjunct to the city of Philadelphia as an ocean terminal if we had to abandon it as a shipyard?

Mr. PIEZ. Well, it is superbly located, and we have arranged our facilities there in such a way that it can be very readily converted. In fact, all of the outfitting piers are really shipping piers, and the dredging—the construction is of such a character that they can be used as shipping piers. I should think that the terminal would be tremendously valuable to the city if they undertook municipal ownership of such facilities.

Senator RANSDELL. Is it not a fact that Philadelphia is a little bit short in its terminal facilities for ocean shipping?

Mr. PIEZ. It is very seriously short, particularly from the accessibility of those shipping facilities to their railroad terminals and facilities.

Senator RANSDELL. And there would be very superb facilities, you say, at Hog Island, if they were ever utilized for that purpose, and they could be utilized, and it would be superbly beneficial?

Mr. PIEZ. That is correct. There are splendid facilities there, and they could be used certainly.

Senator RANSDELL. Would it not be extraordinarily valuable also for private enterprises, this long water front you have there, with the improvements of every kind that you have put up in connection with it, assuming now that you are obliged to junk it as a shipbuilding enterprise? I don't know that you ever will. It is going to go on, in my judgment, and be used as a shipyard, but I am asking your opinion about it now. If we can not carry it on as a shipbuilding enterprise, could it not be utilized for many other things?

Mr. PIEZ. I think it might. That is property that is improving tremendously in value. It is the great new industrial section of Philadelphia, and the shops, the trackage, even away from the water front, would be available and useful for the industries.

Senator RANSDELL. So that as a commercial proposition, aside from any moral effect that it may have had on the world—I am going to get to that moral effect in a moment—it has probably not been a very bad financial investment, has it?

Mr. PIEZ. That depends somewhat on the future value of it. The possibilities do certainly seem to be that it will find a considerable usefulness and will be of considerable value, even if the shipyard itself, that portion of it, the ways, are ultimately abandoned. So that there ought to be a very large salvage value in that property.

Senator RANSDELL. Incomparably greater than the bare value of the material that you might save out of any wreckage?

Mr. PIEZ. Yes; incomparably greater, I think, than the scrap value of the material in it.

Senator RANSDELL. Mr. Piez, I believe that 10 of those ways are of concrete and absolutely permanent, are they not?

Mr. PIEZ. Yes, sir.

Senator RANSDELL. So that if it was decided not to carry on the whole 50 ways as a shipyard, it would be very feasible to have a shipyard of 10 ways on those 10 concrete ways?

Mr. PIEZ. That would be very feasible; yes, sir.

Senator RANSDELL. And would be very valuable?

Mr. PIEZ. I think it would be.

Senator RANSDELL. I do not suppose it is possible to estimate in money the moral effect on the world of a shipyard like that, but could you give us an idea of how that appears to you?

Mr. PIEZ. I would hardly like to venture that, Senator; but I feel most certainly that Hog Island as an enterprise and as a part of our successful conduct of the war was a very important factor.

Senator VARDAMAN. Didn't the fact that this Nation, which had not been a shipbuilding Nation, conceived a shipyard three times as large in the number of ways and its capacity as the greatest shipyard on earth, on the Clyde, have a wonderful effect upon everybody who came to see it? Didn't it do more than anything we could possibly have done to have convinced them we were in the war to win and were going to build all the ships necessary to win?

Mr. PIEZ. I think so.

Senator RANSDELL. It seems so to me. That is all I wanted to ask.

Senator JOHNSON. Mr. Piez, I asked you when you were last here whether or not you had reached any conclusion as to whether or not this particular yard should be taken over by the Government. You said it was under investigation at that time. Do you remember that?

Mr. PIEZ. Yes.

Senator JOHNSON. Has that conclusion been reached as yet?

Mr. PIEZ. Substantially; yes, sir. I believe I answered that question this morning, Senator, when you were not here.

Senator JOHNSON. I probably was absent.

Mr. PIEZ. We have come to the conclusion that by reason of the change which was made in the management at Hog Island some six weeks ago and by reason of the progress that was made there and has been made there in the last six weeks, it would be unwise at this time to make any change, and we feel that it would be distinctly to the advantage of the Government to continue that management for a further period and give it an opportunity to demonstrate its capacity to handle that proposition. The progress there has been excellent.

Senator JOHNSON. Well, what do you mean by the change in management six weeks ago, Mr. Piez?

Mr. PIEZ. They put Mr. Brush at the head of it.

Senator JOHNSON. Why?

Mr. PIEZ. He made certain changes—feeling that he was more competent and able to enthuse as large an organization as that and carry it through.

Senator JOHNSON. Was it because of defects in the organization for deficiencies in the operation that he was put at the head of it?

Mr. PIEZ. Probably because the progress was not——

Senator JOHNSON. Was that management by the Shipping-Board or by private individuals?

Mr. PIEZ. By our agent.

Senator JOHNSON. By your agent?

Mr. PIEZ. Yes.

Senator JOHNSON. Entirely and approved by the board, I assume?

Mr. PIEZ. Yes.

Senator JOHNSON. And because of that change in management, which makes for the more efficient operation of the yard, you reached the conclusion that it would be wise to let it go ahead?

Mr. PIEZ. Yes, sir.

Mr. JOHNSON. Have you reached any conclusion as to whether ultimately it should be taken over by the Government?

Mr. PIEZ. I should say that the present management, if it continued efficient, ought to be permitted to continue and complete contracts at present in the yard.

Senator JOHNSON. When those contracts are completed—because that will be rather a near possibility in the future—have you reached a conclusion as to what should be done with the yard?

Mr. PIEZ. I had not thought that far in advance, Senator, because that would probably be a policy that someone else will have to determine.

Senator JOHNSON. There has been no determination of it, so far as you know?

Mr. PIEZ. No.

Senator JOHNSON. Now, to return to the other question, I asked——

Senator JONES (interposing). Will you let me ask a question right there?

Senator JOHNSON. Surely.

Senator JONES. Don't you think, Mr. Piez——

Mr. PIEZ (interposing). I think it ought to become the property of the Government, if that is what you mean.

Senator JONES. That is what I mean.

Mr. PIEZ. I think we ought to buy the land, if that is what you mean—take title to the land and become the owner of the property.

Senator JOHNSON. You certainly don't think we ought to turn over the $63,000,000 we have put in there to private individuals?

Mr. PIEZ. No; but I thought you referred to continuing the management of the proposition.

Senator JOHNSON. No. But we ought to exercise the option that is in the contract and take over the land?

Mr. PIEZ (interposing). That is my opinion.

Senator VARDAMAN. Before exercising that option do you think we should permit the completion of the 180 ships under the terms of the contract, if the management continues competent?

Senator JOHNSON. You wouldn't have thought that unless the management had been changed would you?

Mr. PIEZ. We would have been in grave doubt if the management had not been changed.

Senator JOHNSON. And the chances were that you would have taken it over if six weeks ago there had not been a change in management?

Mr. PIEZ. There is a possibility of that, a very strong possibility.

Senator JOHNSON. That argues pretty strongly, does it not that the management was not as it should have been before that time?

Mr. PIEZ. Well, the management was not as successful in accomplishment as we had wished.

Senator JOHNSON. Well, perhaps that is an obvious implication and that I ought not to ask you concerning it. Now, the other thing I want your personal opinion on, do you approve of the Government entering into a contract with private individuals, by which the entire expenditure and the entire risk shall be taken by the Government, the expenditures to be unlimited in amount and with profits to private individuals out of it?

Mr. PIEZ. I don't quite get the analogy if you refer to the construction of the yard, Senator, because there was no profit implied in the construction of the yard. Now, as to the construction of ships——

Senator JOHNSON (interposing). Well, are you talking of the contract as being a divisible contract now? It was all one contract, wasn't it?

Mr. PIEZ. It was all one contract, but the compensation was based on only a section of the contract.

Senator JOHNSON. Quite so; but the entire contract related not only to ships but to the yard, too.

Mr. PIEZ. Yes.

Senator JOHNSON. Well, do you believe that the Government should deal with private individuals in that fashion and that way with Government money? I want your opinion of it, that's all.

Mr. PIEZ. Well, sir, I think we have got to bear in mind, in judging of that, the conditions that existed. Did the Government itself at that time have the necessary organization to build up quickly an institution of that kind? And should it have been done at any less money? I know that in my experience with the Fleet Corporation we found it extremely difficult to build up a competent organization quickly, and, as I understand it, one reason for the undertaking of this particular case, the undertaking in the two other cases, was that an organization did exist that seemed to be competent to undertake this enterprise, and therefore an arrangement was made with that organization.

Senator JOHNSON. An organization to do what?

Mr. PIEZ. To conduct the affairs of a great big institution of that kind and carry on construction. I refer now to the Stone & Webster organization, which did have a very enviable record as an engineering concern.

Senator VARDAMAN. Do you think, Mr. Piez, if you had gone there on the ground as the representative of the Government and called to your assistance men, you having ample funds to pay any salary that their services might command, that you could possibly have made more mistakes in your estimates than were made in the constructing of Hog Island; at first, $21,000,000; next, $27,000,000; and at last, $63,000,000? Do you think that anybody could have made

more mistakes in those estimates than were made? And if you had gone there as the representative of the Government of the United States and constructed this plant for the building of these ships, the Government would certainly then have saved the $14,000,000 of profits that will be derived by this corporation that undertook this work.

Senator RANSDELL. Will you permit me to ask there, who made the estimates, in conjunction with your question?

Senator VARDAMAN. Certainly, he can state that in answer to the question.

Mr. PIEZ. You are putting up several very difficult questions. In the first place, I don't know whether they were made conjointly between the agent and the Fleet Corporation, or whether they were submitted by the agent. I presume they were submitted by the agent. The only estimate that I have seen accompanied a plan which was the merest sketch, the barest outline, and that plan was submitted, I think, dated June. I can't conceive how any estimates based on that plan could have been more than approximately correct. I don't believe the plans were ever fully developed. I was not there during the inception and conclusion of this affair, and I am not in position to answer just what processes were gone through in order to determine accurately, or even get a reasonable approximate estimate of the cost of completion.

I want to say this, that there were very few yards which undertook construction that did not exceed very considerably their estimated cost.

Senator JOHNSON. But not in any such proportion as it was exceeded at Hog Island?

Mr. PIEZ. I think out of fairness, that the Submarine Boat Corporation estimate was somewhere between six and seven million dollars, and that the final cost was $17,000,000.

Senator JONES. That is another one of these Government agency propositions?

Mr. PIEZ. But I may state, too, that our own estimate of the cost of constructing five concrete yards was doubled, and we thought that was fairly carefully prepared.

Senator VARDAMAN. You don't pay any commission, though, on the ships that are built in those yards that you made those mistakes on, do you?

Mr. PIEZ. Yes, we do. We have selected agents there. We pay them moderate fees.

The CHAIRMAN. You stated just the other day that this yard as it now stands is quite a different yard from that originally contemplated.

Mr. PIEZ. Very different from that in the original sketch, because even the handling facilities in the yard are different.

All through that period, Senator, I want to say that it was almost impossible to prepare an estimate that could be adhered to.

Senator JOHNSON. I recognize all that. I want your opinion, though, if you can give it—or if you care to give it—as to that method of Governmental construction. If you approve it, well and good; that is your opinion. As you observe, there is a difference of opinion in the committee concerning this particular enterprise, unquestionably. I think that that is obvious. I have one opinion; I

think that my friend at the head of the table has another opinion, and each of us doubtless is very firm in his opinion. Now you, like ourselves, represent the Government. Do you believe that mode of operation—do you approve that mode of operation by which private individuals may spend at will—substantially at will as it was—the money of the Government and derive from that expenditure a profit?

Mr. PIEZ. I can't persuade myself, Senator, that that was the exact situation at Hog Island.

The CHAIRMAN. How did the agent profit by the expenditure there on the yard?

Mr. PIEZ. Well, he did not profit, because the additional expenditure at the yard, of course, meant additional work and additional time; and just to that extent the profits that accrued to him out of ship construction were withheld. So that I think I might answer the Senator's question in this way: That I myself have approved of many steps during the time of emergency that seemed to me to be justified by the results, because it was an emergency; steps that I would not have taken in ordinary conditions, because I would have had the time to examine and the time to plan properly before I went into such an enterprise. But I think in the time in which that contract was signed, I think speed was the sole desideratum, and I think whatever sacrifices were made to speed at that time were justified, barring the cost—providing, of course, that the operations were conducted with honesty.

The CHAIRMAN. Senator, if you will allow me to go to this question of cost—I have the impression that there was some estimate made last April fixing the cost of the yard at something like $55,000,000?

Mr. PIEZ. Yes; but that was after the processes were well along, Senator. I assume that Senator Johnson refers to the earlier estimates that were prepared.

Senator JOHNSON. I am not worrying about the estimates particularly. I am concerned about the expenditure, which I think was gross. I am surprised, if I understand you correctly, in approving what has transpired at Hog Island, and if I am in error in saying that you approve it I hope you will correct me.

Mr. PIEZ. Well, what I said, Senator, I think, was that I did not think the question fully covered the conditions as they existed at Hog Island. I would not approve of conduct such as your question seemed to indicate.

Senator JOHNSON. Would you approve of conduct where a set of private individuals entered into a contract such as the Hog Island contract, and then increased the salaries of a very large number of their organization in putting them upon the job?

Mr. PIEZ. I think all of the salaries at that time—the salary list was submitted to the Emergency Fleet Corporation.

Senator JOHNSON. That is not the point. That is true it was submitted, probably; but do you approve of that?

Mr. PIEZ. Well, I should like to know a little more about it.

Senator JOHNSON. Don't you know all about it, Mr. Piez?

Mr. PIEZ. No; I don't know about their individual arrangements with the men that brought them into the fold.

Senator JOHNSON. Aren't you familiar with the salary roll there?

Mr. PIEZ. Yes; I am at this time, but I was not familiar with the changes that were made at the time. That salary list was approved just about the time I came with the Fleet Corporation.

Senator JOHNSON. Isn't it a fact that you sent Admiral Bowles up there and that Admiral Bowles decreased and lopped off many of the salaries?

Mr. PIEZ. I don't think that Admiral Bowles decreased and lopped off so many of the salaries as he did simplify the organization and modify some of the procedures.

Senator JOHNSON. Are you aware whether he did or did not decrease salaries that were paid?

Mr. PIEZ. I think through his efforts certain salaries that were charged up against cost of construction were assumed by the American International Corporation.

Senator JOHNSON. Well, was it just to require that assumption? Did you follow the testimony that was taken here concerning Hog Island and the salaries paid?

Mr. PIEZ. I did not.

Senator JOHNSON. And you are not familiar with it?

Mr. PIEZ. No; I am not familiar with it in such detail as to enable me to properly answer your question.

Senator VARDAMAN. You do know, don't you, Mr. Piez, that these enormous salaries that the committee complained of, that were changed and cut off—I understood there were a great many of them eliminated—were not continued, and the matter was brought before the committee and the committee expressed its disapproval?

Mr. PIEZ. Well, I am not certain as to that, because I could not keep in touch with every detail of Hog Island, and in touch with the details of the other one hundred and seventy odd yards besides.

Senator LENROOT. You possibly remember that large salaries paid to alleged publicity agents were cut off at that time.

Senator VARDAMAN. A total of $24,000 a year.

Mr. PIEZ. That was I think, last February.

Senator VARDAMAN. Yes; of course, I did not think you were responsible for that.

Mr. PIEZ. You gentlemen have had days of testimony about this, and I was not here.

Senator JOHNSON. And just because of that I was asking you these questions, so as to ascertain exactly what it was that you were approving in reference to Hog Island; whether you were approving expenditures that had been made there, and whether you believed that that was an appropriate method in which to conduct public business.

Mr. PIEZ. Well, I think the method we adopted since February 1st was the appropriate method, because we put there as competent a man as we had to guide our agent and protect our own interests.

Senator JOHNSON. That was Admiral Bowles?

Mr. PIEZ. Yes.

Senator JOHNSON. You put him there because these things had been transpiring before that time, didn't you?

Mr. PIEZ. Yes, in part; and partly because many charges had been made against incompetency and lack of progress; and because the matter had been given so much publicity that our attention was directed to the affair, and because there did seem to be evidence that

the estimates would be largely exceeded, and we wanted to ascertain at first hand what the causes of those excesses were.

Senator JOHNSON. Do you know whether or not there was rental paid for unnecessary equipment?

Mr. PIEZ. The Admiral discovered this: That in accordance with the schedule of completion, rental was being paid for certain equipment that was in excess of the equipment required to complete the particular ways and facilities at the time the schedule showed, and he did remedy that.

Senator JOHNSON. Well, you don't approve of the payment of the excess sum, of course, do you?

Mr. PIEZ. Certainly not.

Senator JOHNSON. And, of course, you do not approve of the payment of excess salaries, do you?

Mr. PIEZ. Not unless they are earned.

Senator JOHNSON. Do you know that Admiral Bowles effected a saving of several thousand dollars a day there?

Mr. PIEZ. Yes. That was, however, through a combination of changes.

Senator JOHNSON. All right; a combination of changes. They would not have been made if they had not been necessary, would they?

Mr. PIEZ. They certainly would not have been made. He would not have made them unless they were necessary.

Senator JOHNSON. Unquestionably, they were approved by the Shipping Board, were they not?

Mr. PIEZ. Certainly; they had my approval at that time.

Senator JOHNSON. So that you approved changes that were made by Admiral Bowles that effected a saving of several thousand dollars a day?

Mr. PIEZ. I think substantially that; yes, sir.

Senator JOHNSON. Those things which were done, that made that expense of several thousand dollars a day, before Admiral Bowles went there you wouldn't approve, would you?

Mr. PIEZ. No.

Senator JOHNSON. Indeed, you did specifically and affirmatively disapprove them?

Mr. PIEZ. I did, because Admiral Bowles was sent there at my recommendation.

Senator JOHNSON. You observe there are many things about this yard—the construction and the performance of the work there—that were matters that were subsequently disapproved by you and that were matters you could not under any circumstances approve?

Mr. PIEZ. That is perfectly true. Some changes were made there because our views as to the situation differed from theirs and we did not feel that they were warranted in making such expenditures to complete facilities long in advance of their probable use.

Senator JOHNSON. Yes. Now, a saving of several thousand dollars a day, of course, is of some moment, is it not?

Mr. PIEZ. It is.

Senator JOHNSON. Even calling it $3,000 a day, that would be $90,000 a month, and that saving, if effected, was, of course, a matter of moment to the Shipping Board and a matter of moment to the Government. That goes without saying, I take it.

Mr. PIEZ. It was.

Senator JOHNSON. And that extravagance which caused that expenditure is something that, of course, neither the Shipping Board nor the Government could approve. Now, whatever you may think of the tremendous moral effect of Hog Island and of its efficacy in winning the war, in the management of Hog Island there were many things that you could not approve, were there not?

Mr. PIEZ. In the early management.

Senator JOHNSON. And in the later management, too. Is that so?

Mr. PIEZ. But we had our own man there later.

Senator JOHNSON. But in the later management there were many things, too, that you couldn't approve? Isn't that so?

Mr. PIEZ. But they had our immediate disapproval then and were changed by reason of it.

Senator JOHNSON. But six weeks ago there was a change in management there, and that change was of such extraordinary and transcendant importance that it probably changed your view for the time being as to whether you would take over the island or not, didn't it?

Mr. PIEZ. Partially that. I haven't been very strong for taking over the island for some time, because I recognized the difficulties that would grow out of a change in management of an enormous enterprise such as that.

Senator JOHNSON. That may be, but what turned the thing and what precluded you, or prevented you for the time being from taking the island over was because of the change of management six weeks ago, and that change of management you thought was efficiently conducting the work that had been inefficiently done prior to that time!

Mr. PIEZ. Well, I think that is using rather strong terms.

Senator JOHNSON. Qualify it as you please, any way you wish.

Mr. PIEZ. Because progress had been very distinctly apparent for many months before that time.

Senator JOHNSON. Well, it wasn't satisfactory at any rate, or you wouldn't have changed the management. Isn't that true?

Mr. PIEZ. I did not feel at that time that they had a man who was aggressive enough and energetic enough to get quick results.

Senator JOHNSON. It was not satisfactory or you would not have changed?

Mr. PIEZ. We felt that the change was a distinct improvement.

Senator JOHNSON. Exactly, and it was a sufficient improvement to make you change your view in relation to taking over the island?

Mr. PIEZ. Yes, sir; it was one of the reasons.

Senator JOHNSON. So we can start with the proposition that up to February 1st the management of the island was unsatisfactory and extravagant.

Take the second proposition that up to six weeks ago the management of the island was not satisfactory and the management was changed.

Mr. PIEZ. Well, let me say a few words in explanation of that position, because I do not think I want to commit myself to an absolute acceptance of all you say there.

Senator JOHNSON. I don't wish you to, if it is not accurate.

Mr. PIEZ. I think what you ought to bear in mind is the difficulty of organizing an enterprise of that kind. The work did not start

there actively until about the middle of October. A very big force was built up there, a force starting with nothing.

Senator VARDAMAN. October, 1917?

Mr. PIEZ. October, 1917—starting with nothing and winding up with a force of something like 24,000 or 25,000 men in the course of 60 or 80 days.

Senator JOHNSON. Wasn't that ever in your mind——

Mr. PIEZ (interposing). Will you just permit me to complete?

Senator JOHNSON. Certainly.

Mr. PIEZ. The organization of as big a force as that, with men gathered from every enterprise outside, is in itself an enormously difficult undertaking, and any organization would purge itself and improve itself as time went on. I don't think the fact we stepped in there at the time and ordered certain changes would indicate that some of those changes would not have been made. Perhaps all of them would have been made if we had not stepped in. But we did step in and we felt justified in stepping in. We stepped in in a helpful rather than a critical sort of way, because we wanted to get the plant completed. We wanted to be in every way helpful, not only in bringing material there, but in assisting them in the task they had there. Now, I do not think that you can get a proper perspective of the situation there unless you bear that in mind, Senator, that there is tremendous difficulty. I have gone through it myself in the Fleet Coroporation. We were a tremendously more effective organization when the armistice was signed than we were six months before. And so every organization is liable to improve.

Senator JOHNSON. Didn't you have this in mind during your dealings with Hog Island at all times?

Mr. PIEZ. Certainly.

Senator JOHNSON. Of course you made the requisite allowance for the fact that it was a tremendous undertaking for the period, the season in which it was going on; for the hasty gathering together of the great organization; and all of the matters you mentioned were in your mind and you made allowances for them, didn't you?

Mr. PIEZ. Yes; we made allowances for them.

Senator JOHNSON. Notwithstanding all of that, you put Admiral Bowles up there on the 1st of February, and he saved several thousand dollars a day; and notwithstanding all of that, after the 1st of February there was a change of management that you desired and approved of six weeks ago.

Mr. PIEZ. There have been two changes since then.

Senator JOHNSON. And were they both at your suggestion?

Mr. PIEZ. The last was not at our suggestion.

Senator JOHNSON. Well, you were very glad it occurred, were you not?

Mr. PIEZ. We were very glad it occurred.

Senator JOHNSON. When was the other one?

Mr. PIEZ. I think in March or April.

Senator JOHNSON. In March or April. And who was it that then was put in charge there?

Mr. PIEZ. The man whom Mr. Brush succeeded, Mr. Holbrook, was put in charge, and I think that was with the admiral's sanction.

The CHAIRMAN. Goodrich broke down, didn't he?

Mr. PIEZ. Yes; but I mean the man at the head. Holbrook succeeded Robinson.

Senator JOHNSON. And was that change made at your suggestion?

Mr. PIEZ. It was made, I think, partially at the admiral's suggestion; yes, sir.

Senator JOHNSON. And approved by you?

Mr. PIEZ. Yes, sir.

Senator JOHNSON. Was his work satisfactory and efficient?

Mr. PIEZ. Which, Robinson's?

Senator JOHNSON. Holbrook's.

Mr. PIEZ. Mr. Holbrook was finally succeeded by Mr. Brush some six weeks ago.

Senator JOHNSON. He was succeeded by Brush because he didn't do the job as you wanted it done, wasn't he—or as your agent wanted it done?

Mr. PIEZ. Well, he was succeeded because we felt that another man would probably do it better.

Senator JOHNSON. So now we have three changes—I have forgotten one—February 1, when Admiral Bowles went there and saved $3,000 a day from that time on; a month or two later when Holbrook came, and he couldn't do the job, and he was succeeded by Brush about six weeks ago.

Mr. PIEZ. That records three changes; yes, sir.

Senator JOHNSON. All right, sir. That is all I have.

The CHAIRMAN. Mr. Piez, speaking about the organization now, how do you regard the organization?

Mr. PIEZ. I think it is an effective organization. It is an organization that ought to be given an opportunity to complete the contracts. We are very mindful of our obligations, Mr. Chairman.

The CHAIRMAN. Suppose you displaced the organization and, perhaps, a little later on decided to go on building ships there, how long would it take you to get together an organization such as you have now?

Mr. PIEZ. I am afraid it would take a long while, Senator, because it is a question whether the Government is going to continue its shipbuilding policy, and therefore it is a question as to whether there is going to be business enough for the yard after the termination of the contracts; and we would have to attempt to secure an organization for a temporary job, which would be an extremely difficult thing to do.

The CHAIRMAN. It would take many months to get up an organization such as they have?

Mr. PIEZ. Indeed it would. I am afraid you would sacrifice a very considerable part of the fees you are paying the present agents if you undertook to make a change.

The CHAIRMAN. Have you any idea how many men passed through that yard since the time you started work there in October?

Mr. PIEZ. What do you mean?

The CHAIRMAN. I mean how many men have gone on the rolls there and have gone off and have sifted through the yard? In other words what is the turnover?

Mr. PIEZ. Well, I presume—they have had a turnover, I presume, of about 60 per cent a month most of the time. I should say some-

what over 200,000 men have gone through in order to build up an organization of perhaps 25,000.

The CHAIRMAN. How do these fees of the agents paid at Hog Island compare with the fees paid on other contracts?

Mr. PIEZ. So far as their percentages to the contract price is concerned they are the same as they are at the Merchants & Submarine Boat.

Senator VARDAMAN. Mr. Piez, just at that point, state definitely—there is some doubt in the newspapers, and seems to be in the minds of some of the committee, as to the actual fees paid this corporation.

Mr. PIEZ. We put that in the last hearing, Senator.

Senator VARDAMAN. I know. I thought you had it in your mind.

Mr. PIEZ. I have got individual prices. I would have to compute them. I think the Attorney General's report covers the maximum and minimum.

Senator VARDAMAN. I have it here before me.

The CHAIRMAN. It is all in the hearings.

Senator VARDAMAN. I just wanted the per cent on the ship.

Mr. PIEZ. Well, on the basis—the basis was for the first 50 ships, 5 per cent of the estimated cost—that is $55,000 for a ship worth $1,100,000. The price on the succeeding ships was $52,500, and that price, however, was predicated on an estimated cost of about $1,400,000, so that it was something under 4 per cent. The original intent was to pay them a fee of 5 per cent on the first lot, and about 4 or 4½ per cent on the succeeding ones. And that was the intent in respect to all of the fabricated ship contracts.

The CHAIRMAN. May I inquire about this matter of rentals—some question has been raised about the rentals, the rentals of plants, for pile driving and that sort of thing—how were they estimated? Was the man's plant rented, for instance, at so much a day for so many months on an estimate that the work would be completed within that time, and he was paid simply for so many months, no matter how long his plant was used to complete that work? Is that the case?

Mr. PIEZ. I am not certain enough about that, Senator—I do not recall the details. I can have that gotten for you. I know that wherever there were subcontracts the subcontracts were done on a fee basis, on a definite fee, and that the fee was not increased by reason of the increase in cost for performance of the work. I do not know whether a similar limitation applied to the rental of equipment. I have a detailed analysis of that.

The CHAIRMAN. I think that is in the testimony. Do you know whether or not those subcontractors made any money on their subcontracts, or did they usually lose?

Mr. PIEZ. I don't know.

The CHAIRMAN. Did they cost more than the estimate?

Mr. PIEZ. You ask whether I know if they made money?

The CHAIRMAN. Whether the cost was more than the estimate.

Mr. PIEZ. The cost was in all cases materially higher than the estimate, so that the fee was very small in proportion to the actual cost of the work done.

The CHAIRMAN. The fee was based on estimated cost, and the actual cost exceeded the estimate?

Mr. PIEZ. That was the general rule.

Senator CALDER. Is that correct regarding subcontractors at Hog Island, that the fee was based upon the estimated cost?

Mr. PIEZ. Yes.

Senator CALDER. Or was it based on actual cost?

Mr. PIEZ. No; it was based on estimated cost. Now, here is a detailed analysis of the subcontracts on plant construction. The fee contracts amounted to $7,863,466. The fee was $408,344. The equipment rental, included in cost, was $176,914. There were lump-sum contracts of $3,049,839.

We were unable to ascertain what percentage of profit was figured in those.

Senator VARDAMAN. How much did you say the fees were that were paid to subcontractors?

Mr. PIEZ. $408,344. And there was an equipment rental included in the cost of those contracts of $176,914.

Senator VARDAMAN. That was not contemplated when the corporation entered into the contract with the Government to supervise the construction of the plant at all, was it? The plant was to be constructed in the early negotiations free of cost to the Government; that is, so far as fees were concerned?

Mr. PIEZ. So far as fees to our agents were concerned.

Senator VARDAMAN. Well, there was nothing really said about the subcontractor until after the contract was entered into between the Emergency Fleet Corporation and the contractor?

Mr. PIEZ. No; I don't know what was said, because I didn't conduct the negotiations, but I know in large engineering work of that kind, Senator, it is presumed that a certain amount will be subcontracted to people who have the special facilities—dredging, for instance, pile driving, and work that requires special facilities is usually sublet. That is current practice in all contract work.

The CHAIRMAN. Have you got the figures there to show the cost of that work on which those fees and the rentals were paid?

Mr. PIEZ. I have not; no, sir.

The CHAIRMAN. I wish you would look that up.

Mr. PIEZ. This is the cost of the work.

The CHAIRMAN. The cost of the work—not the estimate.

Mr. PIEZ. No. The total cost of all sublet work is $12,6[illegible] We will make a memorandum and try and get you the estimated cost on which the fees were based.

The CHAIRMAN. Now, in the recommendations of the Department of Justice they say:

> In our judgment the shipyard being in the main completed, the board of arbitration should be established and the question should be definitely submitted to them as to whether under the proper interpretation of the contract the expenditures for the plant construction at Hog Island were reasonably necessary.

What have you to say about that?

Mr. PIEZ. Of course, we are acting wholly under the advice of the Attorney General in that matter. I haven't had an opportunity to see Mr. Todd or Mr. Hyman since I have read this report, and I feel that we are the agents of the President in carrying out the contract, and that as the legal adviser of the President the Attorney General will probably direct us as to what to do. The contract

course, provides that a board shall be named, a board of arbitration, in case there is any dispute between the agents and the general manager.

The CHAIRMAN. That is, in case there is a dispute it must be first referred to the general manager, as I understand, and then if the general manager——

Mr. PIEZ (interposing). The decision rests with the general manager.

The CHAIRMAN. Then if the general manager does not settle it, and his decision is not agreeable to the parties, there can be an arbitration under clause 22 of the contract.

Mr. PIEZ. The Attorney General refers to that situation immediately above. "We refer to article 22 of the contract, providing that any dispute as to the manner of doing the work, etc., shall be referred to the general manager of the fleet corporation, and his decision shall be final and binding except that after the shipyard is constructed the agent may appeal to a board of arbitration."

The CHAIRMAN. Is there any dispute pending between an agent and the fleet corporation that has been presented to the general manager, or that the general manager has passed upon, or that there is anything to arbitrate upon?

Mr. PIEZ. I am not privy to all of the information that the Attorney General has in his possession as to the result of his long inquiry that led to this recommendation, and I shall be very glad to get in touch with him and cooperate with him in bringing this matter to a head.

Senator RANSDELL. Do you know as to any of these whether there should be an arbitration as suggested by him in his recommendation?

Mr. PIEZ. His report and the statement made on page 21. That is what I know about it, Senator.

Senator RANSDELL. To what do you refer there?

Mr. PIEZ. Well, to the first paragraph on the top of page 21:

> We could not examine this array of evidence without coming to the conclusion, etc.

I have not even seen the comparative figures presented by the engineers whom the Attorney General had making investigations, so that I am not in a position to make any statement. I presume they refer to certain portions of the work about which I am not provided with the details.

Senator LENROOT. At some time I should like to ask Mr. Piez a few questions about certain things appearing on page 21 of the Attorney General's report.

The CHAIRMAN. Proceed.

Senator LENROOT. Mr. Piez, referring to the same page that you have called attention to, I call your attention to the third paragraph of the Attorney General's report:

> The most significant single fact indicating the point of view at Hog Island was that bills for materials, largely lumber, were prepaid (and properly prepaid) to the extent of over $10,000,000, but no effort was made by agent until our investigations to prove whether the prepaid bills were in fact followed by the actual receipt of the material paid for.

This investigation, I believe, was begun by the Attorney General's office last February?

Mr. PIEZ. Yes, about that time.

Senator LENROOT. Now, although the agent may have made no effort to ascertain whether the lumber which had been paid for had actually been delivered, did not the Emergency Fleet Corporation check that up?

Mr. PIEZ. I do not know, Senator, whether in the earlier days we took any steps to check actual receipts. As I remember the conversation I had with Mr. Todd—and I am speaking now from memory—what he said was this, that in the ordinary processes of any enterprise, large construction work or manufacturing, the receipt of material is acknowledged by material-received slips, which go to the auditor in order to check up—assisting checking up and passing the invoice. I understand that that step was taken; that is, that the receipt had actually been vouched for, but that these material-received slips were not in any kind of shape so that they could be used in checking up against the invoices the actual receipt of the material. So that, as I remember his criticism at the time, we took some steps to produce a more orderly method of filing at that time—it was rather against the method of filing and arranging the supporting documents than against the method of procedure. There was no actual omission of a check, as I remember it, but there was a curious criticism of the fact that the checking papers, the receipt slips, were not so filed that they were readily available in checking up the receipts.

Senator LENROOT. Does that mean that the Emergency Fleet Corporation has been paying out these millions of dollars without itself undertaking to make any check as to what was being received for those millions of dollars?

Mr. PIEZ. Well, we had a very extensive corps at that time—I am talking now without knowledge of the facts——

Senator LENROOT (interposing). This report brings us down to the last of February. They say until their investigation began there was no such checking.

Mr. PIEZ. Well, I think what the Attorney General is referring to there is the fact that the papers were not properly classified and arranged so as to make them available. I think there was an improvement ordered at that time. We had quite a number of representatives on the ground. We certainly checked up the piles, and we checked up all the larger items; whether we went down to check up every detail I am not certain, without looking into it.

Senator LENROOT. Then, I will read the following paragraph:

> Another fact of strong significance is that while the contract provided in express terms that the agent should keep a detailed plant cost account and contained very careful provisions defining cost, yet the agent at an early date took the position that since the Government paid for everything that went into Hog Island it was unnecessary to comply with this provision. Hence, at no stage of the work since last December could it be determined what any unit of plant construction cost. Thus, it was never possible for the agent, and the agent never attempted to supervise either its own work or the work of its subcontractors from the point of view of what the work was costing.

Does that also apply to the Emergency Fleet Corporation?

Mr. PIEZ. I presume he refers there, does he not, to the Emergency Fleet Corporation?

Senator LENROOT. He is referring to the agent now.

Mr. PIEZ. Senator, it was because of the investigation we made in December and the statement made to me by our division of shipyard

construction as to the cost of certain units of the work there, that we ordered the examination and put Admiral Bowles in charge, so that we were from that time acquainted with the cost of the work. We submitted a report, I think, at the end of December or at the beginning of January in which, I think—Senator Johnson, you remember—the cost of driving piles and other units of the work were covered. So that we were then following that. I think this refers more particularly to the fact that there was no sufficient detailed distribution of expenditures to make a determination of the cost of each element in that file readily available.

Senator LENROOT. But notice the language: "At no stage of the work since last December could it be determined what any unit of plant construction cost."

The language of that report would imply that since last December it had been more difficult at least to make such determination than it had been before that.

Mr. PIEZ. I should like to ascertain by actual conference with Mr. Todd what is meant by that paragraph.

Senator LENROOT. Then, may I ask you, what data can the Emergency Fleet Corporation furnish as to the different elements of cost in the construction of this yard?

Mr. PIEZ. We have got a distribution into something like 11 or 12 subdivisions, which accompanied my report to Mr. Hurley.

Senator LENROOT. What I mean more particularly is, there was an estimate made in the first place by the American International Corporation as to their estimated cost of this yard, was there not?

Mr. PIEZ. Yes, sir.

Senator LENROOT. In that estimate did they give details as to allocating or prorating the costs?

Mr. PIEZ. Not that I remember; no, sir. I do not think there is anything to check up the actual cost against, because I do not think the preliminary estimate was more than a mere guess, according to all of the records I have seen. I have not seen any detailed statement of the estimate giving the cost of the ways and the subdivisions of the work that could be used as a basis for comparing the actual cost.

Senator LENROOT. Apparently it was not until several months later on that they said it was a "guess."

Mr. PIEZ. The figure of $21,000,000 was presented with a sketch in June to Gen. Goethals. An attempt to analyze those figures, I think, was later made in October and November, when the estimate was changed to $27,000,000. But there were serious departures from the original plan and constant departures from the plan. The original plan was not adhered to and the original estimate thereon as a basis of comparison was of substantially no value.

Senator LENROOT. No; but would not that analysis furnish a basis to check against?

Mr. PIEZ. Well, I doubt it, because the plant as it is constructed to-day is not the plant that that plan that was submitted with the estimate shows. Very material changes were made in the yard arrangements and the track arrangements and the handling facilities, all involving very considerable modifications in cost.

Senator LENROOT. Yes; but that was accounted for in estimates and is really only a small percentage of the total cost?

Mr. PIEZ. Yes. And then, of course, the very large difference was, I think, in the number of piles required and the cost of driving individual piles and the cost of doing the subsurface work.

Senator LENROOT. You say "the additional number of piles required." I take it then that the original estimate did give an estimate of the number of piles required.

Mr. PIEZ. I do not remember as to that.

Senator LENROOT. And I presume the number of feet of lumber required?

Mr. PIEZ. Yes.

Senator LENROOT. What I am getting at is, has your corporation now in its possession facts which it can furnish as to the actual number of piles and the cost thereof, the actual number of feet of lumber and the cost, and the tonnage of the steel, and the cost in all these various factors that go to make up this $55,000,000?

Mr. PIEZ. I think such a division of costs can be furnished.

Senator LENROOT. Would not that be very helpful in ascertaining where any extravagance does rest, if there be such?

Mr. PIEZ. We have asked for such a statement from the agent in an effort to cooperate with the Attorney General in developing these points that he raises.

Senator LENROOT. I wish to ask one more question relative to what I was on this morning. I find that in the contract put in for the American International, for reasons of public policy, the schedule of deliveries was not included in the contract so put in the record. I take it there is no reason now why it should not be furnished to the committee and inserted in the record—the schedule of the deliveries of the Hog Island plant under the contract.

Mr. PIEZ. Is it not in the record?

Senator LENROOT. It is in the contract, but was omitted from the record for reasons of public policy.

Mr. PIEZ. Yes, we will be very glad to supply that and the revised schedule.

Senator LENROOT. May I ask you what have been the deliveries of the Merchants Co. of ships?

Mr. PIEZ. No deliveries.

Senator LENROOT. I find under their contract that it calls for delivery of 24 ships by December 7. There have been none, you say?

Mr. PIEZ. None.

Senator LENROOT. In the case of the Submarine Boat——

Mr. PIEZ (interposing). The Merchants would have made delivery of a single ship, but she met with an accident after her trial.

Senator LENROOT. In the case of the Submarine Boat no deliveries have been made—the Submarine Boat had a contract for 150 ships. How many have been delivered?

Mr. PIEZ. They have made one delivery, the *Agawam*.

Senator LENROOT. And their contract called for 125 ships by December 7 and they delivered one?

Mr. PIEZ. They are being seriously handicapped there by the difficulty they are experiencing with the turbines. That yard has really produced very well, and they have really a great many ships in the water almost ready for turning over, but difficulties in the course of construction have developed there that grew out of certain defects of manufacture for which the yard itself is not responsible.

The CHAIRMAN. Referring to your statements with reference to the Hog Island situation, can you state what effect on the cost there and on the delay in making deliveries was occasioned by the taking on of the different type of ships; in other words, whether a yard which is to build one type of ship cannot make better progress and proceed more rapidly and at less expense than where they have to make two types of ship?

Mr. PIEZ. I think it was a serious mistake to impose a second type of ship on that yard, Senator, from the standpoint of delivery alone, because it more than doubled their problems. The class B type is a rather complicated ship, and placing a contract for that type of ship with a manufacturer before the manufacturer of the simpler type had actually been delivered, I think seriously impeded the deliveries and complicated the problems that the management had to face.

The CHAIRMAN. And added to the expense?

Mr. PIEZ. And it added to the expense of the yard very materially.

The CHAIRMAN. Referring back a moment. I had not quite finished with reference to a board of arbitration. I am trying to see what would be accomplished by a board of arbitration. Under the terms of the contract any dispute as to the manner of doing the work shall be referred to the general manager of the Fleet Corporation and his decision shall be final and binding, except that after the shipyard is constructed the agent may appeal to a board of arbitration consisting of three disinterested naval architects, etc. It would seem that under the terms of the contract if there is a dispute arising as to the manner of doing the work, etc., that it shall be first referred to the general manager of the Fleet Corporation?

Mr. PIEZ. Yes, sir.

The CHAIRMAN. Is there any dispute pending now?

Mr. PIEZ. None that has been referred to the general manager. That may have grown out of the fact that the entire operations there were under the surveillance and investigation of the Attorney General, and that therefore the Emergency Fleet Corporation has stepped aside in the matter.

The CHAIRMAN. Then in case of any dispute the first step—and that would seem to be a reasonable course to pursue—would be to refer that dispute to the general manager?

Mr. PIEZ. Yes, sir.

The CHAIRMAN. And then if the general manager is not able to arrive at a settlement of it the agent can appeal to a board of arbitration; and in that event the board may be established?

Mr. PIEZ. Yes, sir.

The CHAIRMAN. But so far there would seem to be no occasion for any board as long as there has not been any appeal from any decision of the general manager based on some dispute between the agent and the corporation.

Senator RANSDELL. If I gather correctly, there would be no right to create a board of arbitration except on the request of the agent to settle some dispute which was not settled satisfactorily by the general manager. Am I correct in that?

Mr. PIEZ. That is the process outlined in the contract; yes, sir.

Senator LENROOT. But I take it, Mr. Piez, you have not undertaken to pass, in your capacity as general manager, upon any of the things

that were entirely completed and out of the way prior to the time you assumed the general managership?

Mr. PIEZ. I have not.

Senator LENROOT. And if you were advised by the Attorney General, as general manager, under the contract you ought to take cognizance of something that would present a different situation?

Mr. PIEZ. Absolutely. We feel that we should act absolutely under the directions of the Attorney General in that case, and I conceive such a situation might arise in following out that suggestion.

Senator JONES. To what extent was the management changed about six weeks ago?

Mr. PIEZ. They changed the head and changed certain of the men beneath.

Senator JONES. How many?

Mr. PIEZ. I do not know as to that.

Senator JONES. What changes would be involved in the event of the Government taking the plant over?

Mr. PIEZ. It would depend altogether on how many men of the present organization we could retain, and I am not certain we could retain very many of them.

Senator JONES. What do you men by the "present organization"? How many men in the present organization is that you have in mind? You do not have in mind the whole 25,000?

Mr. PIEZ. No, no.

Senator JONES. That is what I want to get at. It was brought out here and the impression was left that if the Government took the plant over it would involve a change in the whole force.

Mr. PIEZ. No; I meant the effective heads of the various divisions.

Senator JONES. Would the effective heads of all the divisions be involved?

Mr. PIEZ. A change in management sometimes results in quite an exodus of the men near the top.

Senator JONES. How much of an exodus has it resulted in by the change?

Mr. PIEZ. But here the ownership has not changed; the same ownership still exists.

Senator JONES. You mean the same agency?

Mr. PIEZ. I mean the same agency; yes. Still exists.

Senator JONES. That is what I want to get at. How many men would be involved in the Government taking over this organization?

Mr. PIEZ. Well, I think probably 18 or 20 of the very important men.

Senator JONES. Do you think it would be very difficult to get men now to take their places?

Mr. PIEZ. I should say so; yes, sir.

Senator JONES. And to work along pretty effectively?

Mr. PIEZ. I should say so; yes, sir.

Senator VARDAMAN. Mr. Piez, how are we going to conduct it, then, if we take it over after this contract is completed? If your reasoning is correct, in order to conduct it we will have to perpetuate this contract in order to get somebody to work there, will we not?

Mr. PIEZ. If we were definitely certain that we were going to continue the operations of the yard as a shipbuilding plant, and that

the Government would commit itself to the continuation of a shipbuilding program, we might say that if we were going to take it over at the end of this contract it would be better to take it over now. I am not certain, however, that you are holding out that idea.

Senator VARDAMAN. But you think that if the Government should determine to take over this property and continue in the shipbuilding business that the conduct of the business would be interfered with materially by these men resigning, do you; or, if they should resign, there would be any difficulty in getting somebody to fill their places?

Mr. PIEZ. The trouble I foresee, Senator, is this, that the present contract will probably expire in 18 months, and, therefore, if you make a very decided change there now it would result in very serious change in the heads of divisions.

Senator VARDAMAN. But I said, take it over with the understanding that you were to continue in the shipbuilding enterprise.

Mr. PIEZ. Yes; but what certainty is there of that?

Senator VARDAMAN. If it takes it over at all, I think there is a very great certainty.

Mr. PIEZ. The thing I am judging by now is the fact that our organizations have been limited. But there is not any immediate prospect of any considerable amount of business of the character Hog Island is doing, and the Emergency Fleet Corporation is therefore confronted with the proposition of changing the management at a time when the contract is perhaps 25 or 30 per cent completed, and when there is no likelihood, at least no reasonably immediate likelihood, of any continuance of further work. If that were to be an enduring enterprise, a continuing enterprise, then that, of course, would have something to do with it.

Senator VARDAMAN. I do not think there is great difficulty, if the Government should assume control of it, about getting men to conduct the enterprise either to the completion of this contract or as a permanent Government-owned enterprise.

Mr. PIEZ. Well, but would the Government want to go into the shipbuilding business per se? It might want to do it in order to complete the program of its merchant marine, but would it want to go into it as a competitive shipbuilding business?

Senator VARDAMAN. That is a problem that will have to be solved.

Mr. PIEZ. That is the problem that faces us, and it is still to be solved, Senator.

Senator JONES. The employment of these men, if this is left in the hands of the agency, would cease when the contract is fulfilled, would it not?

Mr. PIEZ. Yes; but they have other work they can assign them to, Senator. They have all been withdrawn from other activities of the same agents.

Senator JONES. How many of them?

Mr. PIEZ. All, or substantially all of the permanent men there are men who have come in through that agency.

Senator JONES. They come in from other employments of the agency?

Mr. PIEZ. Yes; substantially all the men did.

Senator JONES. Do you know about how many of those men there are?

Mr. PIEZ. I will be very glad to give you the exact number. But they were all attached to that salary list that was submitted last spring.

Senator JONES. All I am trying to get at is to just see about how much of a probable disruption would occur there if the Government were to take it over. Suppose the Government would take it over and put in new management and say to these heads of divisions, "We will continue your salary just the same as you are getting now." How many men would likely quit?

Mr. PIEZ. I said before some 15 or 20, I thought, of the leading men in that institution, because the agent would have to start up some other enterprises.

Senator JONES. You think that the immediate subordinates under these men could not carry on the work pretty effectively until you get men to take their places?

Mr. PIEZ. I am a little apprehensive about the result of such a wholesale demoralization of the organization.

Senator JONES. The question is whether that would work a wholesale demoralization of the organization or not? That is what I am trying to get at.

Mr. PIEZ. My own experience would make me shy at making such a change.

Senator JONES. That is your opinion, that it would?

Mr. PIEZ. It would; yes, sir.

Senator JONES. Then this estimate or "guess" that you have referred to was made as to the cost of this yard, it was contemplated that it would be a 50-way yard, was it not?

Mr. PIEZ. Yes, sir. There was an opportunity in the contract to reduce it, but that was not availed of.

Senator JONES. Yes, I know; but that was the basis, a 50-way yard?

The CHAIRMAN. We passed a resolution this morning which is quite comprehensive, and I expect it is going to take a few days to get that data together.

Mr. PIEZ. It may take a few weeks, Senator. I think most of that information is contained in this report, and I was surprised to learn this morning that that report had not been printed. The galley proof has just been submitted to me to make revisions. I think in the matter of requisitions, contract ships, and their allocation to subcontractors this report is a complete answer to the resolution.

Senator JONES. Mr. Peiz, that report covers a whole lot of things that would not be responsive to the resolution, does it not?

Mr. PIEZ. I think most of these elements in here are responsive to it, but we will have to rearrange them to suit the purpose and spirit of the resolution.

Senator JONES. I read that resolution over, and it presents certain questions and asks for information, and I would like to see specific answers given to each question so that we do not have to wade through a whole lot of data and add and subtract so as to get the information desired.

Mr. PIEZ. I will be very glad to do as you request and have it printed so as to distribute to all the members of the committee. But it may take more than a few days. I think you ought to give us two

weeks, Mr. Chairman, because we have other work to do and our force is a thousand less to-day than it was a month ago.

The CHAIRMAN. Is there any objection to adjourning two weeks?

Senator LENROOT. Is Mr. Taylor, who has made the report on housing, available? I do not think there is anything on that that is called for in that resolution, but it might be of some importance to examine Mr. Taylor with reference to certain features of that report as to continuing certain projects.

Mr. PIEZ. I await your pleasure about that.

The CHAIRMAN. When do you suggest that we hear him? Would next Thursday, our regular meeting day, be all right?

Mr. PIEZ. We will have Mr. Taylor here next Thursday, then, and I will be here with him probably.

If you will allow me, in answer to Senator Lenroot's question, I would say that the schedule of deliveries was provided for in the original contract of September 13, 1917, in clause 4, and it is as follows:

> The agent hereby agrees to complete said 50 vessels and to have them ready for delivery to the owner in accordance with the following schedule, viz, within 13½ months from the date of this contract.

This schedule of deliveries was subsequently amended on May 8, 1918, as follows: Fifty A boats, January 1, 1919; 35 B boats, April 15, 1919; 35 B boats, August 4, 1919; 30 A boats, April 1, 1919; 30 A boats, July 24, 1919.

The CHAIRMAN. The committee will now stand adjourned until 10.30 o'clock a. m. next Thursday.

(Thereupon, at 4.30 o'clock p. m., the committee adjourned, to meet Thursday, Jan. 9, 1919, at 10.30 o'clock a. m.)

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# UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION

## HEARING

BEFORE THE

## COMMITTEE ON COMMERCE
## UNITED STATES SENATE

SIXTY-FIFTH CONGRESS

THIRD SESSION

ON

## S. RES. 170

DIRECTING THE COMMITTEE ON COMMERCE TO INVESTIGATE ALL MATTERS CONNECTED WITH THE BUILDING OF MERCHANT VESSELS UNDER THE DIRECTION OF THE UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION AND REPORT ITS FINDINGS TO THE SENATE, TOGETHER WITH ITS RECOMMENDATIONS THEREON

JANUARY 9, 1919

Printed for the use of the Committee on Commerce

## PART 6

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1919

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# UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION.

THURSDAY, JANUARY 9, 1919.

UNITED STATES SENATE,
COMMITTEE ON COMMERCE,
*Washington, D. C.*

The committee met, pursuant to adjournment, in the committee room, Capitol, at 10.30 o'clock a. m., Senator Duncan U. Fletcher presiding.

Present: Senators Fletcher (chairman), Ransdell, Vardaman, Bankhead, Simmons, Nelson, Jones, Harding, Fernald, Calder, and Lenroot.

The CHAIRMAN. The hearing set for this morning was with regard to the housing question. Mr. Taylor is here, and the committee will now hear him on that subject.

Will you please state your name and place of residence, Mr. Taylor?

## STATEMENT OF MR. A. MERRITT TAYLOR, MANAGER DIVISION OF PASSENGER TRANSPORTATION AND HOUSING, UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION.

Mr. TAYLOR. My name is A. Merritt Taylor; residence, Philadelphia, Pa.

The CHAIRMAN. What is your occupation, Mr. Taylor?

Mr. TAYLOR. I am manager of the division of passenger transportation and housing of the United States Shipping Board Emergency Fleet Corporation.

The CHAIRMAN. How long have you been connected with them?

Mr. TAYLOR. On the 3d day of April I was appointed director of passenger transportation.

The CHAIRMAN. 1918?

Mr. TAYLOR. 1918. On the 7th day of May the housing department and the passenger transportation department of the Emergency Fleet Corporation were merged, and the division of passenger transportation and housing was thus established, and I was appointed manager thereof.

The CHAIRMAN. Prior to your connection with this work, Mr. Taylor, what was your business?

Mr. TAYLOR. My normal business is the financing, construction, and operation of electric railways and the reorganization and refinancing of electric railways and the development of suburban territory along the lines of railways in which I am interested. I have thus developed several suburban communities for the purpose of developing traffic. I have also financed many building operations for builders.

On May 27, 1912, I was appointed transit commissioner of Philadelphia by Mayor Blankenburg. My duties were to determine for the city what subways and elevated railway lines were required then and prospectively to furnish adequate rapid-transit facilities for Philadelphia; to determine the character of and proper location for such lines and to develop a plan for their establishment.

On July 1, 1913, I had completed this work and had framed the necessary legislation to enable the city to finance the cost of building the recommended lines and to build them. All this legislation, including an act increasing the city's borrowing capacity by over $40,000,000, was enacted by the Legislature of Pennsylvania in the spring of 1913, including also the adoption, for the first time, of a joint resolution amending the constitution whereunder the borrowing capacity of the city was still further increased by upward of $60,000,000 for rapid-transit and port development. This amendment was subsequently adopted.

On July 1, 1913, I was appointed director of the department of city transit of Philadelphia, which was established on that date, under authority of the legislature, and as director of that department was charged with the supervision of the design of the municipal transit system composed of subways and elevated railways, the construction of which I had recommended as transit commissioner, and which recommendations were adopted by the city of Philadelphia. After I had let a number of contracts for the construction of the municipal system and work was well under way, I retired from this public work in Mayor Blankenburg's cabinet upon the expiration of his term of office in January, 1916.

The CHAIRMAN. Where was your principal office and place of business?

Mr. TAYLOR. No. 610 Commercial Trust Building, Philadelphia.

The CHAIRMAN. State, in a general way, what you have done in relation to the United States Emergency Fleet Corporation in connection both with housing and with transportation.

Senator CALDER. Mr. Chairman, may I ask a question before the witness proceeds to that?

The CHAIRMAN. I wanted him to give an idea of the necessity for the work that was undertaken; but you may ask him the question you have in mind now.

Senator CALDER. You have never contracted for or built houses yourself, have you, Mr. Taylor?

Mr. TAYLOR. No, I never have. I always had others build them for me; but I have never built a house myself.

Senator NELSON. Have you ever had charge of railroad transportation before?

Mr. TAYLOR. Yes, sir.

Senator NELSON. Outside of electric lines?

Mr. TAYLOR. No steam railroads.

Senator NELSON. You never had anything to do with steam railroads?

Mr. TAYLOR. No, sir. As president of the New Jersey & Hudson River Railway & Ferry Co., which operates a ferry from the foot of West One hundred and thirtieth Street, New York, to Englewood, N. J., and a railway system thence through the north Jersey suburbs, I financed and supervised the reconstruction, extension, and opera

tion of that system during a period of 10 years, until we sold that property.

Senator NELSON. Is that a steam railroad?

Mr. TAYLOR. No; a high-speed electric road. Also, I have been for 20 years and still am president of the Philadelphia & West Chester Traction Co., which extends from Philadelphia to West Chester and other suburban points, which is also a high-speed interurban electric railroad.

The CHAIRMAN. Now you may answer the questions that I was asking you, Mr. Taylor.

Mr. TAYLOR. I call attention to my report, dated December 7, 1918, addressed to Mr. Charles Piez, which has been printed by your committee for its use. That report contains about as concise a statement as it is possible for me to make regarding the activities of my division, from a general viewpoint; and with your permission, and if it be your desire, I shall be very glad to read a part of that report. It tells just what the division has accomplished.

The CHAIRMAN. Do you refer now to pages 4 and 5 of that report?

Mr. TAYLOR. I think it would be well to include page 3 also, because the data on page 3 shows, in a general way, what security the Government has for the money invested in housing.

Senator NELSON. Would it not be well for you, in the first place, to state to us briefly the plan you have proceeded upon?

Mr. TAYLOR. Yes, sir.

Senator NELSON. The plan you have proceeded upon to carry on the building operations; that is, what plan you have followed?

Mr. TAYLOR. We have, first——

Senator JONES (interposing). Excuse me, Mr. Chairman, but I will have to ask to be excused, because I have to attend a meeting of the subcommittee on appropriations for the District of Columbia.

The CHAIRMAN. Certainly, Senator Jones.

Mr. TAYLOR. The passenger transportation department first investigated the cause of labor shortage at the various shipyards having contracts with the Fleet Corporation, and remedied that shortage of labor, in so far as it could be remedied, by making all houses in the district available which could be made available by transportation facilities. In this connection——

Senator NELSON (interposing). Right at that point, Mr. Taylor, did you try to rent and secure houses for the employees; and if so, what steps did you take to that end?

Mr. TAYLOR. We did not build any houses——

Senator NELSON (interposing). I am not asking you about building houses. Before you went into building did you take any steps to secure or rent houses for employees?

Mr. TAYLOR. Yes; we requisitioned some houses which were not occupied in Philadelphia.

Senator NELSON. Yes.

Mr. TAYLOR. And elsewhere made a thorough examination as to whether there were unoccupied houses that we could get; and so long as there were any such unoccupied houses we did not authorize housing projects at the point in question.

Senator NELSON. Well, what did you do with the requisitioned houses that you got?

Mr. TAYLOR. In Philadelphia?

STANFORD LIBRARIES

Senator NELSON. Yes; did you put them in order immediately for use?

Mr. TAYLOR. They were new houses, and the requisition was not carried to a completion, and the owner of the houses sold them to the Fleet Corporation.

Senator NELSON. You bought them, then?

Mr. TAYLOR. Yes; Admiral Bowles took charge of that negotiation.

Senator NELSON. But what I meant particularly was, did you make any efforts to search around, as, for instance, they did here in Washington, to find rooms for Government employees—did you make any effort to find places where those shipyard workers could secure room and board?

Mr. TAYLOR. We made a thorough investigation of the housing conditions at every point where there was a labor shortage in the shipyards and ascertained whether or not there were any vacancies; and upon ascertaining that there were no vacancies, and that the living conditions were very congested, we then authorized the building of houses to solve the problem, where it could not be solved by transportation. Mr. Bayles reminds me that we rented 133 houses in Baltimore.

Senator NELSON. That is along the line of what I am trying to find out.

The CHAIRMAN. You may proceed, Mr. Taylor. What did you do in connection with transportation?

Mr. TAYLOR. What did we do in connection with it?

The CHAIRMAN. Yes.

Mr. TAYLOR. I will read from my report of December 7, 1918:

As a condition precedent to determining upon the necessity for and establishment of a housing project for the service of any shipyard and the character and extent thereof, a most careful survey was first made of all deficiencies in passenger transportation facilities which throttled passenger traffic between the shipyard in question and all existing housing facilities under a separate appropriation. All existing housing facilities which were found to be unavailable to the shipyard by reason of lack of proper and necessary transportation facilities were made available to the shipyard mainly by either financing or establishing extensions and enlargements of such transportation facilities out of a separate appropriation made by Congress for that purpose in the amount of $20,000,000, or by placing steamboats and special trains in service.

In this connection the purchase of 320 new street cars and 35 second-hand street cars was financed for the service of 17 shipyards.

Street railway extensions were either built or financed for the service of 11 shipyards.

Track changes and loops were financed for 20 shipyards.

Enlargement of railway power-plant facilities was financed for 17 shipyards.

Thirty steamboats were placed in service for 20 shipyards.

Sixty special steam railroad trains were placed in service for 26 shipyards.

Street railway schedules were improved for 40 shipyards.

Working hours were staggered at 10 shipyards.

Steam railroad schedules were improved for 12 shipyards.

Over 125,000 shipyard employees are now being transported by the additional passenger-transportation facilities thus established.

Senator CALDER. What did that cost all together?

Mr. TAYLOR. The gross cost is approximately $12,500,000, and I believe that the loss will be between 25 and 50 per cent thereof.

Senator NELSON. How do you distinguish between the net and the gross cost?

Mr. TAYLOR. The gross cost, $12,500,000, is the amount of money which we loaned to the various companies to enlarge their power-

plant facilities, to buy cars, and to extend tracks, or appropriated otherwise, as I shall describe, and we provide——

Senator NELSON (interposing). Those were advances, then, made to different power companies?

Mr. TAYLOR. And railway companies.

Senator NELSON. Were they in the shape of loans or in the shape of gifts?

Mr. TAYLOR. Loans or appropriations.

Senator NELSON. With security for the Government?

Mr. TAYLOR. Yes.

Senator NELSON. And were those loans drawing interest?

Mr. TAYLOR. Those loans draw interest at the rate of 5 per cent per annum, and generally are repayable to the Government in five equal annual installments, there is a write off, provided for which in most cases is limited to 25 per cent, based on appraisal.

Senator NELSON. How do you account, then, for the salvage being so scant—you say you will only get back from 50 to 75 per cent—if it is in the shape of loans?

Mr. TAYLOR. We provided in making the loans, in most instances, that the excess war cost, not exceeding 25 per cent, should be written off, as ascertained by appraisal.

Senator NELSON. In other words, then, you loaned money at 5 per cent interest to make these extensions with?

Mr. TAYLOR. Yes.

Senator NELSON. With the understanding that they should be allowed the deduction for the extra war cost?

Mr. TAYLOR. Yes; the extra cost due to the high war prices.

Senator NELSON. In other words, there was a rebate of 25 per cent on every $100 you loaned them?

Mr. TAYLOR. Not exceeding 25 per cent, as determined by appraisal; that is, except in three contracts, I believe, and one car contract in Newport News. There the companies are only obligated to return the appraised value after the war.

Senator LENROOT. You said, as I understood you, that the net cost would be only 50 or 75 per cent of the amount stated by you; is that correct?

Mr. TAYLOR. Yes, sir.

Senator LENROOT. Then the salvage would be about 75 per cent, if you state it in that way?

Mr. TAYLOR. I might explain that in addition to making these loans we were running special trains, special steamboats, and other facilities.

Senator LENROOT. I thought Senator Nelson assumed that there would be only 25 per cent salvage.

Mr. TAYLOR. I see what you want to get.

Senator NELSON. I want to say right there that I do not understand your figures, and I want some light on them.

Mr. TAYLOR. I shall be very glad to give you every detail relating to the matter.

Senator NELSON. Well, suppose you loaned a given company $100,000, we will say, to build a power plant, or an extension to their line, or improvement of their equipment.

Mr. TAYLOR. Yes, sir.

STANFORD LIBRARIES

Senator NELSON. With the understanding, we will say, that they were to pay interest at the rate of 5 per cent, and to have a deduction of 25 per cent for the extra war cost.

Mr. TAYLOR. Not exceeding 25 per cent.

Senator NELSON. Not exceeding 25 per cent. In other words, then, for every $100,000 you loaned you would only be able to get back in round figures $75,000. Then, how can you figure that the net cost to the Government will be only $75,000? Will not the net cost to the Government be what the Government has put into it and is losing?

Mr. TAYLOR. The net cost to the Government——

Senator NELSON (interposing). Yes; will not the net cost to the Government be the money that the Government advances, the $100,000, and not the $75,000 that they get back?

Mr. TAYLOR. No; the net cost will be the amount——

Senator NELSON (interposing). It will be the net cost to the company that you advance the money to. The net cost to that company is $75,000, but the Government is out $100,000?

Mr. TAYLOR. No; the Government gets back the appraised value.

Senator NELSON. Well, you get the plant back, do you not?

Mr. TAYLOR. We get the money back.

Senator NELSON. You get the money back?

Mr. TAYLOR. Yes; at the appraised value.

Senator NELSON. You get 75 per cent back in junk, we will say, in the appraisement, and the Government has lost 25 per cent more, has it not?

Mr. TAYLOR. No.

Senator NELSON. Yes; you have lost it, because you have wiped that off on account of war expenses.

Senator RANSDELL. Do you get that back in money or in plant and equipment?

Mr. TAYLOR. In cash.

Senator RANSDELL. You advance the company, we will say, $100,000; you let them charge off not exceeding 25 per cent for the extra war cost, and they pay you back $75,000?

Mr. TAYLOR. Yes, sir.

Senator RANSDELL. So that the Government stands to get back 75 per cent, or $75,000?

Mr. TAYLOR. Yes, sir; except in the cases I have cited.

Senator HARDING. I want to ask you one question at this point: You spoke of this large expenditure for transportation. Was that carried on without any compensation whatever—your special trains and steamboats?

Mr. TAYLOR. The conditions have varied at different points. The Macy Board has issued rules governing the various districts in the country, requiring the Fleet Corporation to absorb certain car fares, or transportation expenses, exceeding a certain amount; and we have had to comply with those rulings of the Macy Board.

Senator HARDING. That is, the labor board?

Mr. TAYLOR. Yes; the wage-adjustment board.

Senator HARDING. Will you give a specific instance?

Mr. TAYLOR. Mr. Cooke, will you hand me the fare absorption papers? [Examining papers.] In the Philadelphia district the Macy Board's ruling requires that all car fares in excess of 8 cents

which are paid by shipyard workers engaged on Emergency Fleet Corporation work shall be absorbed and paid by the Emergency Fleet Corporation.

Senator NELSON. How much was the excess fare, Mr. Taylor?

Senator HARDING. He is going to give us a specific instance in detail.

Senator NELSON. All right.

Mr. TAYLOR. That is, where the shipyard applied for it.

Senator HARDING. Yes; I want a specific example of the operation of that.

Mr. TAYLOR. We will take as an example the Merchants' Shipbuilding Corporation at Bristol, Pa., a Government-owned yard.

Senator HARDING. Yes; I would like to have that.

Mr. TAYLOR. The absorption——

Senator LENROOT (interposing). Well, what does the Macy Board do there?

Mr. TAYLOR. That is the Philadelphia district as determined by the Macy Board.

Senator LENROOT. Oh, yes.

Mr. TAYLOR. We absorbed there the entire amount of substantially all steam-train fares, which aggregate more than 16 cents per round trip per day. The absorption at that yard amounted to $22,955 per month.

Senator HARDING. And what did that absorption consist of?

Mr. TAYLOR. Train fares between the shipyard and Trenton, N. J., for 1,025 passengers per day, costing $7.185 per month.

Senator VARDAMAN. That was fares in excess of 8 cents?

Mr. TAYLOR. No; the absorption consisted of the total round-trip fare if this was in excess of 16 cents per day, which was in accordance with the Macy Board ruling.

Senator VARDAMAN. What did the railroad companies receive per passenger at that rate?

Mr. TAYLOR. I can not tell you; those fares are the standard fares, fixed by the Railroad Administration; I did not put them in the schedule.

Senator NELSON. They did not take Pullmans, and I suppose it was 3 cents per mile. [Laughter.]

The CHAIRMAN. Is that a steam road?

Mr. TAYLOR. The Pennsylvania Railroad; yes, sir. Continuing, the train service between the shipyard and Philadelphia carried 1,616 passengers per day.

Senator CALDER. Is that the Merchants Shipyard bill?

Mr. TAYLOR. Yes. The cost was $15,200 per month. Train and ferry service between shipyard and New Jersey towns, 95 passengers per day, costing $570 per month. And these three items added together give the amount I first named, $22,955 per month fares absorbed for shipyard workers working in that particular plant of the Emergency Fleet Corporation.

The CHAIRMAN. What plant is that, did you say?

Mr. TAYLOR. That is the Merchants Shipbuilding Corporation, at Bristol, Pa.; that is between Trenton and Philadelphia.

Senator LENROOT. Before you leave that point, were there no such things as commutation rates in existence at that time between those points?

STANFORD LIBRARIES

Mr. TAYLOR. There were various rates in effect consisting of 60-trip commutation tickets and special workingmen's tickets good between different points and the shipyard.

Senator LENROOT. Those are special rates; so that it was not at the ordinary charge?

Mr. TAYLOR. We got the very lowest rates the Railroad Administration would give us, and we had one man working on rates all the time.

Senator LENROOT. Can you tell us what that rate was in this particular case?

Mr. TAYLOR. I can not give you the figures at this time.

The CHAIRMAN. Will you supply that information when you revise your statement?

Mr. TAYLOR. I will be very glad to do so.

Senator LENROOT. And I would like to have it in mileage, if you have it, at the different points.

Mr. TAYLOR. Yes, sir.

(The statement referred to was subsequently submitted by Mr. Taylor and is here printed in full, as follows:)

*Distances and rates of fare between Bristol and stations shown herein to Merchants Shipbuilding Corporation, Bristol, Pa., via Pennsylvania R. R.*

| | Distance between Merchants Shipbuilding Corporation and various points. | Regular one-way fare. | 60-ride commutation ticket. | | Workmen's 12 trip ticket. | |
|---|---|---|---|---|---|---|
| | | | Monthly rate. | Rate per trip for 60 trips. | 12-trip rate. | Rate per trip. |
| | *Miles.* | *Cents.* | | *Cents.* | | *Cents.* |
| Philadelphia | 23.5 | 68 | $11.00 | 18.3 | $2.30 | 19 |
| North Philadelphia | 18 | 54 | 9.19 | 15.3 | 1.90 | 15.8 |
| North Penn Junction | 16.9 | 52 | 8.86 | 14.7 | [1] 1.90 | 15.8 |
| Frankford Junction | 14.8 | 47 | 8.20 | 13.6 | [1] 1.90 | 15.8 |
| Frankford | 13.9 | 44 | 7.87 | 13.1 | [1] 1.90 | 15.8 |
| Bridesburg | 13.2 | 42 | 7.70 | 12.8 | [1] 1.90 | 15.8 |
| Wissinoming | 12.4 | 37 | 7.37 | 12.3 | [1] 1.90 | 15.8 |
| Tacony | 11.2 | 36 | 7.04 | 11.7 | [1] 1.90 | 15.8 |
| Holmesburg Junction | 10.2 | 35 | 6.71 | 11.2 | [1] 1.90 | 15.8 |
| Trenton | 10 | 34 | 6.55 | 10.9 | 1.32 | 11 |
| Morrisville | 8.7 | 28 | 6.22 | 10.3 | [2] 1.32 | 11 |

[1] Tickets read from North Philadelphia Station.
[2] Tickets read from Trenton.

Senator NELSON. In what mode was that carried on; were the men furnished the tickets, or did the company furnish the number carried to the Emergency Fleet Corporation?

Mr. COOKE. That was reported by the company and audited by the Emergency Fleet Corporation.

Senator NELSON. Then the men did not have to buy tickets?

Mr. COOKE. They did in some cases, and in some cases they did not.

Senator NELSON. The company would simply make a report of how many they carried and that was all; you had no other voucher for it?

Mr. COOKE. They kept a record under the supervision of our resident auditor and submitted the bill approved by him for payment.

Senator HARDING. May I ask you, Mr. Taylor, are you still doing this?

Mr. TAYLOR. Yes; we are getting away from it as rapidly as possible, however.

The CHAIRMAN. How many workmen did you have reach the plant through that means?

Mr. TAYLOR. Twenty-two thousand and sixteen men per day, throughout the country.

The CHAIRMAN. Oh, I mean as to that particular plant.

Mr. TAYLOR. As to the Merchants plant?

The CHAIRMAN. Yes; the Merchants plant.

Senator FERNALD. Mr. Chairman, I am not quite clear as to Senator Nelson's question as to the difference between the net and the gross cost——

The CHAIRMAN (interposing). Well, I suggest that you let me finish with this point first. I want to know how many workers actually reached the plant through this expenditure of $22,000 a month.

Mr. TAYLOR. In the case of the Merchants shipyard, 2,736 passengers per day.

The CHAIRMAN. Do you know how many men you had employed in that plant?

Mr. COOKE. Eleven thousand nine hundred and seventy-eight.

The CHAIRMAN. Employed in that work?

Mr. COOKE. Yes, sir; employed in that yard.

The CHAIRMAN. How does it happen that you had to transport so many of those workers, when your statement shows that you spent for housing there $5,210,000, or, at least, there are commitments for that amount?

Senator NELSON. At Bristol?

The CHAIRMAN. At Bristol.

Mr. TAYLOR. The housing will relieve that fare absorption. The housing project at Bristol is now largely completed. By that, I mean the houses are practically all completed, and there are a few details to be finished in the completion of the hotel.

Senator VARDAMAN. The amounts that you paid for absorption were before the houses were constructed?

Mr. TAYLOR. Yes, sir; and that will be a rapidly decreasing amount, and we expect to get rid of all of this fare absorption in the next 30 or 60 days.

The CHAIRMAN. Will these same workers move into your houses there, or will you displace those workers and take others and put them into the houses?

Mr. TAYLOR. We hope a large number of those workers will move to that point and occupy the houses.

The CHAIRMAN. To what extent are the houses occupied now that you have constructed?

Mr. TAYLOR. The houses are practically full. I speak of the hotels as houses also; the hotels are not quite completed.

Senator NELSON. Are those houses owned by the Government?

Mr. TAYLOR. The houses are owned by the Government in that case, because the yard is owned by the Government.

SIMMONS LIBRARIES

Senator NELSON. The yard is owned by the Government, and the building is the Government's building, and it is rented to the employees?

Mr. TAYLOR. Yes. But I want to say right here, because I think you gentlemen ought to know what my views are, that I do not approve of the Government continuing to own workmen's homes and thus acting as landlords to one class of American citizens, and I am exceedingly anxious that we shall dispose of these houses and cease to be the landlord as promptly as we can, without undue loss to the Government.

Senator VARDAMAN. Is it cheaper to the Government to own the houses and rent them to the employee than it is to pay this daily mileage to and from the plant?

Mr. TAYLOR. We could not get the required number of men to the yard where we have built houses unless the houses were built. Take the situation in the Philadelphia district and the Trenton district, for instance, with which I am peculiarly familiar. Philadelphia was absolutely saturated, in so far as its housing facilities were concerned; there was room for no more people. The same is true as to Trenton. These were the only places of residence which were available to the shipyard workers at the Merchants plant.

Senator VARDAMAN. Well, what number of employees will the houses that you have constructed there accommodate?

Mr. TAYLOR. At Bristol?

Senator VARDAMAN. Yes.

Senator HARDING. About 800, according to the report.

The CHAIRMAN. No; it is 2,822; that is what the report shows, that they will accommodate, 2,822 men.

Mr. TAYLOR. I will give it to you in a moment. [Examining papers.] Bristol, 4,082 shipyard workers.

Senator VARDAMAN. Four thousand and eighty-two workers will be accommodated in the houses you have constructed there?

Mr. TAYLOR. Four thousand and eighty-two will be accommodated in the houses and the hotels.

Senator CALDER. It says here in the report, 2,822.

The CHAIRMAN. Yes; the report says, on page 9, 2,822 men.

Senator LENROOT. That does not include the hotels, according to your report, does it?

The CHAIRMAN. The report shows that you had then accommodated in the hotels 450.

Mr. TAYLOR. Two thousand eight hundred and twenty-two is correct. I unfortunately read the wrong figure in the table.

Senator VARDAMAN. That is 2,822 workers?

Mr. TAYLOR. Are housed at Bristol.

Senator VARDAMAN. Are housed at Bristol in houses constructed to meet this emergency by the Government?

Mr. TAYLOR. Yes, sir.

Senator VARDAMAN. Do you remember the cost of those houses?

Mr. TAYLOR. I have it here. [Examining papers.]

Senator CALDER. In answering that question, will you please state, first, how many people live in separate dwellings, and, second, what those houses cost? You have three different types of houses: You have hotels, you have apartment houses, and you have private dwellings.

Mr. TAYLOR. Yes, sir; I shall be very glad to answer that.

Senator VARDAMAN. Let him answer the question as to the cost first, and then answer the other question.

Mr. TAYLOR. The total cost of the Bristol project?

Senator NELSON. I thought he said it was something over $5,000,000.

The CHAIRMAN. Yes; $5,200,000.

Senator NELSON. For housing 800 people?

Senator RANSDELL. No; 2,822. That was the amount of the commitment; and he said a good many of these places were not finished; that was the way I understood his testimony.

Mr. TAYLOR. That is correct.

The CHAIRMAN. The number of individual houses is given in the report as 325; the number of men accommodated in individual houses is 442; the number of apartment houses, 277; the number of men accommodated in apartment houses, 1,930; number of hotels, 1; number of men accommodated in them, 450; making a total of 2,822. I presume that is correct.

Mr. TAYLOR. Yes, sir.

Senator NELSON. Were those buildings of stone, or of brick, or of wood?

Mr. TAYLOR. They were largely of frame construction.

The CHAIRMAN. Will you tell us what the private houses cost, and then the hotels, and then the apartment houses?

Mr. TAYLOR. Yes, sir; I have the figures right here. [Indicating.] The houses will cost $4,074.74 each, approximately.

Senator VARDAMAN. What are the dimensions of those houses; what is the number of rooms in them, and so on?

Mr. TAYLOR. Mr. Ackerman, have you the design of those houses?

Mr. ACKERMAN. Yes; they are among the photographs.

Senator HARDING. Does that cost include the land, Mr. Taylor?

The CHAIRMAN. No.

Mr. TAYLOR. That is the house construction cost. I want to say that, in so far as the Bristol project is concerned, and the project within Philadelphia, that when I took over the housing facilities of the Fleet Corporation, Admiral Bowles had already initiated these projects.

I went to Philadelphia with Messrs. Hurley and Piez and I found that Admiral Bowles was making such splendid progress with the work and doing such a magnificent job that I suggested to Messrs. Hurley and Piez that he should be allowed to remain in control of those two operations and build them; he had taken a very great interest in them.

Senator HARDING. Which was probably entirely agreeable to him, was it not?

Mr. TAYLOR. It was probably entirely agreeable to him; I had never met the gentleman before; but he made such a good showing on what he was doing that I thought it my duty not to take over those two developments, as I could not do it any better than he was doing it himself.

Senator HARDING. Will you please explain this average cost of $4,000 that you have given; does that include the cost of the realty?

Mr. TAYLOR. No; the realty cost $150,700.

Senator HARDING. At Bristol?

STANFORD LIBRARIES

Mr. TAYLOR. Yes, sir; at Bristol; that is 100.7 acres.

The CHAIRMAN. That would be how much land per house?

Mr. TAYLOR. Well, there are 325 individual houses, 277 apartment houses, and 1 hotel; there are a good many different types.

Senator RANSDELL. Does the acreage that he has given include the shipyard or just the housing portion of the ground?

Mr. TAYLOR. Just the housing portion.

The CHAIRMAN. Is that adjacent to the shipyard?

Mr. TAYLOR. Yes, sir; it is right adjacent to the steam railroad as you pass the shipyard.

Senator NELSON. Did you have to buy the land?

Mr. TAYLOR. That land was bought just prior to my connection with the Fleet Corporation.

Senator NELSON. It was not originally a part of the yard, then, was it?

Mr. TAYLOR. It was a part of the yard; was it not, Mr. Bayles?

Mr. BAYLES. That land was purchased by the Merchants' Shipbuilding Corporation.

Senator NELSON. From whom?

Mr. BAYLES. I could not tell you. They were the agents of the Fleet Corporation.

Senator NELSON. But they purchased it?

Mr. BAYLES. They purchased the land for the shipyard proper, and they purchased the land used for housing. And the land used for housing was carved out, leaving the shipyard separate, and it is the intention of the Fleet Corporation to purchase from the Merchants' Shipbuilding Corporation at a price representing the cost to the Merchants' Shipbuilding Corporation of the land used for housing purposes.

Senator VARDAMAN. Do you know how much per acre it cost the Merchants' Corporation to purchase the land?

Mr. TAYLOR. It was 100 acres, at a total cost of $150,000.

Senator VARDAMAN. Do you know the value of that land before the war?

Mr. TAYLOR. No; I am not at all familiar with that, and I had nothing to do with the transaction; it was all a closed incident before I became connected with the Fleet Corporation.

Senator VARDAMAN. I wish you would answer my question as to the size of the house that cost about $4,000; how many rooms there were in it, etc.

Mr. TAYLOR. I will show you the photograph. [Handing photograph to Senator Vardaman.]

The CHAIRMAN. Perhaps you can tell whether up to this time the Emergency Fleet Corporation has acquired title to that land. It is still owned by the Merchants, is it?

Mr. BAYLES. I could not tell you whether the title has been passed, but I do know that an agreement has been entered into providing that the Emergency Fleet Corporation shall have title upon paying the actual cost to the Merchants Corporation of just so much of the land as is occupied by housing. Whether the deed has passed or not I could not say; I think it has, but I am not sure.

Mr. TAYLOR. Here is a photograph of one of the houses, Senator [indicating].

Senator HARDING. In passing, can you tell approximately how many rooms those houses have?

Mr. TAYLOR. I have never been in one of those houses.

Senator HARDING. Does anyone who is present with you know?

Mr. TAYLOR. I think Mr. Ackerman may know.

Mr. ACKERMAN. Those are mainly five and six room houses.

Senator VARDAMAN (examining photograph). There is one of eight rooms, one of six, one of five, and one of four, I believe.

Senator FERNALD. What rent is charged?

Mr. TAYLOR. In connection with these houses you have me at a disadvantage, because I have had nothing to do with the management of this project; it has all been delegated to Admiral Bowles, and I have only the most general figures with regard to it.

Senator HARDING. I want to know if a five-room frame house there cost approximately $4,500.

Mr. TAYLOR. Yes, sir.

Senator VARDAMAN. What is the size of the rooms?

Mr. TAYLOR. We have not those dimensions here.

The CHAIRMAN. Are they one-story houses?

Mr. TAYLOR. No, sir; two-story houses.

Senator RANSDELL. Could you not give us some details as to similar houses which have come under your own operations?

Mr. TAYLOR. Yes, sir; I shall be very glad to do so.

Senator RANSDELL. Will you consent to his doing that in answer to your question, Senator Vardaman?

Senator VARDAMAN. Yes.

Senator RANSDELL. Take a case that you are familiar with, Mr. Taylor.

Mr. TAYLOR. Yes, sir.

Senator HARDING. And you are housing a little better than one workman to a house, are you?

Mr. TAYLOR. It depends on the design and size of the houses. We figure, for comparative purposes, two men to a house. We have found four, five, six, and seven workmen living in one house in many instances in severely congested sections.

Senator HARDING. But you do not get that condition often?

Mr. TAYLOR. You do in congested districts. In the Chester district, I can show you a great many small houses which were housing from 7 to 10 workmen, several occupying the same room and with the same bed occupied twice during each 24 hours.

Senator HARDING. Well, give a specific instance.

Mr. TAYLOR. Two is not the actual number occupying them; that is merely the theoretical capacity.

Senator HARDING. Well, we want to get information as to the practical side of it, if you please. You report at the Merchants shipyard 325 houses, accommodating 442 men; that would be one and one-third man to a house.

Mr. TAYLOR. One and a fourth; that is Admiral Bowles's estimate as to those houses.

Senator HARDING. Yes, one and one-fourth.

Mr. TAYLOR. That is the figure on those particular houses.

Senator VARDAMAN. Where you build a two-story house, you will have two or three rooms on the first floor, and two rooms on the floor above, or five rooms in all, will you not?

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Mr. TAYLOR. We have, in many cases, three rooms above.

Senator VARDAMAN. Is it cheaper to build a two-story, six-room house, in a house of that kind, than it would be to build a three or four room one-story house?

Mr. TAYLOR. Yes; it is cheaper than to build a one-story house of equal capacity.

Senator VARDAMAN. What would be the difference between the cost of the one-story, three-room house and the two-story six-room house, three rooms below and three rooms above?

Mr. TAYLOR. I have not the figures as to that.

Senator RANSDELL. Could you not give us the figures as to one particular case that you are familiar with?

Mr. TAYLOR. May I take the case of Manitowoc?

Senator LENROOT. Is that not one of your cheapest?

Mr. TAYLOR. It is, of the frame houses.

Senator CALDER. I wish you would take Groton, Conn.

Mr. TAYLOR. We canceled that, down to 42 houses.

Senator CALDER. What did they cost?

Mr. TAYLOR. I can not tell what our loss on cancellation will be there yet; but in the case of Groton, we required the Groton Iron Works to give us, as additional security, a first mortgage on approximately 60 houses which they had already built, which were nearing completion.

Well, we can take the case of Lorain, Ohio, or that of Manitowoc, Wis. Perhaps we had better take Lorain, Ohio, as we have the figures on it right here [indicating]. That is a frame house. I will pass the photograph of it around to give the committee a general idea of it [handing photograph].

Senator HARDING. Are the houses furnished?

Mr. TAYLOR. No; we do not furnish the houses.

Senator HARDING. The Government has no part in furnishing them?

Mr. TAYLOR. Except in temporary barracks, where we had to put furniture and beds in.

Senator HARDING. How about the apartment houses?

Mr. TAYLOR. We do not furnish the apartment houses; we furnish the hotels.

Senator HARDING. To whom are the apartments rented?

Mr. TAYLOR. To shipyard workers.

Senator HARDING. And they must come in and furnish them themselves?

Mr. TAYLOR. They must furnish them themselves, and they are doing it very satisfactorily. We opened the first unit of the Newport News apartment, at Newport News, Va., only a few weeks ago, and nearly every room is occupied right now.

Senator HARDING. You also speak of hotels; to whom goes the operation of the hotels?

Mr. TAYLOR. The hotel, where it is built on the shipyard property—on property contributed by the shipyard—is operated by the shipbuilding company, or the realty company.

The CHAIRMAN. You speak of hotels erected out of the fund here in this report [indicating].

Mr. TAYLOR. Are you speaking of Bristol?

The CHAIRMAN. Well, I am speaking of any project that includes hotels. I do not care whether it is at Bristol or elsewhere. I notice you have hotels at a number of places; for example, four at Hog Island.

Mr. TAYLOR. They are on Government-owned land, because it is for a Government-owned yard, and they are operated by the American International Corporation.

Senator VARDAMAN. Is the American International Corporation operating the hotel?

Mr. TAYLOR. Yes; the American International Shipbuilding Corporation is operating the hotel in connection with the shipyard.

Senator VARDAMAN. Have they been a paying investment to the Government or have they been a loss?

Mr. TAYLOR. That Hog Island hotel, I am informed, lost $16,000 last year. It is operated by the American International Shipbuilding Corporation under the supervision of Admiral Bowles.

Senator VARDAMAN. That is a small loss—for Hog Island. [Laughter.]

Mr. TAYLOR. I am informed the hotel is now breaking even on operating expenses; is it not, Mr. Anderson?

Mr. ANDERSON. Yes; I so understand.

Mr. TAYLOR. I do not want to unduly cumber your record, Mr. Chairman, but I do want to give you all the information.

Senator HARDING. While you are at it, let us have a concrete illustration of one of your own building enterprises. We have had one of Admiral Bowles's; take up one that you managed for the Emergency Fleet Corporation.

Mr. TAYLOR. Well, we can take Jacksonville, Fla.

Senator HARDING. That will be a very good illustration.

Senator LENROOT. I hope you will take one which is of the average cost.

Senator RANSDELL. May I suggest, Mr. Chairman, that Mr. Taylor be allowed to take an illustration somewhere? He started to take Manitowoc and somebody suggested that he take Connecticut. Then he started to take one in Florida, and somebody suggested that he take one somewhere else.

Mr. LENROOT. Well, if he takes one which is of the lowest cost, then, in order to get a correct idea we would have to get one of the highest cost.

Senator RANSDELL. Yes; that is true; let him take two or three cases: let him take one of low cost, one at an average cost, and one at a high cost.

Mr. TAYLOR. Perhaps I can clarify the situation by saying that I want to take one of each class, the cheapest, the medium, and the highest cost, in order to make it absolutely fair, and give the committee a correct impression.

Senator HARDING. That is a very good idea.

Mr. TAYLOR. I hand you, Senator [handing photographs to Senator Ransdell], a batch of photographs illustrating the types of house which we have built at South Jacksonville, Fla., together with a plat of the housing development showing streets and lots.



STANFORD LIBRARIES

Senator RANSDELL. Would you mind stating the dimensions of those houses and lots, because the picture can not go very well into your testimony.

Mr. TAYLOR. Mr. Ackerman, have you the figures?

The CHAIRMAN. Give us the cost and size of the house.

Mr. ACKERMAN. I can not state the size and number of rooms. There are 35 four-room houses, 97 five-room houses, 30 six-room houses, and 30 seven-room houses.

Senator HARDING. Can you give in that connection the cost?

Mr. ACKERMAN. I have not the cost.

The CHAIRMAN. Can you give the cost, Mr. Taylor?

Mr. TAYLOR. I have the cost here. [Indicating.]

Senator HARDING. That ought to go in with the dimensions. Are these houses of frame?

Mr. ACKERMAN. All frame; stucco.

Senator HARDING. Is it the same type as the house across the street?

Mr. TAYLOR. No, sir. May I read these figures? [Reading:]

South Jacksonville: 158 detached houses, which will cost on an average $3,427.44 per house to construct.

Senator VARDAMAN. Now, please state the size of this house.

Mr. TAYLOR. May I read the rest of the costs first?

Senator VARDAMAN. Yes.

Mr. TAYLOR. One dormitory, containing 86 rooms, will cost $65,665, or $763.55 per person. That has been canceled before construction work started. The public utility, including street improvements, planting, grading, etc., will cost $217,800, of which the city of Jacksonville has agreed to repay $100,000 to the Government in aid of this development.

The CHAIRMAN. South Jacksonville?

Mr. TAYLOR. Yes; South Jacksonville. And included in the above figures is a loan to the gas company in the amount of $29,000, to enable them to extend their gas mains through the project, all of which they have agreed to return in annual installments.

Hence the Jacksonville project will cost net approximately $607,200 for the houses, or $3,843.04 each house net cost.

Senator HARDING. Does that include the realty?

Mr. TAYLOR (continuing). Plus public utilities, including street improvements, planting, grading, etc., which will cost $217,800.

Now, the real estate, 47.5 acres, cost $59,375——

Senator NELSON (interposing). Over $1,000 an acre?

Mr. TAYLOR (continuing). Which was purchased by the shipbuilding company and placed by the shipbuilding company, clear of incumbrance, under the Government's mortgage to secure the loan made for housing construction.

Senator VARDAMAN. Please state to the committee the size of the house.

Mr. TAYLOR. I think I can give you the size of that house [examining papers].

The CHAIRMAN. Mr. Ackerman has already stated the number of houses.

Senator VARDAMAN. Well, you have it before you. Just explain the number of rooms, and the size of the rooms, and whether the house is a single-story or a two-story house.

Mr. TAYLOR. The first house I turn to [examining papers] is a one-story house, containing a front porch, 7 feet 6 inches by 26 feet; a living room, or living hall, 12 feet by 15 feet 6 inches, with a fireplace in it; a kitchen 10 feet by 10 feet; a bedroom 10 feet by 15 feet 9 inches; a bedroom 10 feet by 10 feet; a bathroom, and a rear porch.

Senator VARDAMAN. That is, two bedrooms?

Mr. TAYLOR. Yes; and a living room.

Senator VARDAMAN. Two bedrooms, a kitchen, and a sitting room, and a hall 12 feet, and a front gallery.

Senator RANSDELL. And a back gallery.

Senator VARDAMAN. And that costs $3,800?

The CHAIRMAN. There are some seven-room houses.

Mr. TAYLOR. That is the average cost of the houses in that project, in which there are some two-story houses.

The CHAIRMAN. And there are some seven-room houses.

Senator HARDING. Will you state to the committee how you contracted for those houses?

Mr. TAYLOR. Yes; I shall be glad to make some general statement as to the cost.

Senator RANSDELL. Pardon me, but you have given one of the cheaper types of houses; would it not be well to give also a seven-room house as an illustration?

Senator HARDING. I think that is fair.

Senator RANSDELL. If we have only a specific illustration of one of the most inexpensive houses, and you have given the average cost as $3,800, we ought also to have an example of the better class of houses, showing the dimensions, number of rooms, etc.

Senator VARDAMAN. Yes; he ought also to state the number of small houses and the number of good houses.

Mr. TAYLOR. I turn to another plan of a Jacksonville house. This [indicating] is a one-story house, with a porch 10 feet by 13 feet. I will ask Mr. Ackerman to read these figures. Just describe the first floor, and the dimensions of each room, Mr. Ackerman.

Mr. ACKERMAN. This house [indicating photograph] contains a living room 13 by 17 feet; a bedroom 11 feet by 11 feet, another bedroom 11 feet by 15 feet; a kitchen 10 feet by 11 feet 6 inches; a dining room 10 feet by 13 feet; a rear porch 5 feet 10 by 11 feet; and a bathroom.

Senator VARDAMAN. Now, can you tell, Mr. Ackerman, the number of houses of that kind in that project?

Mr. ACKERMAN. There are 97 five-room houses, which approximate this inside.

Senator VARDAMAN. Now, the number of houses of the larger size.

Mr. ACKERMAN. The six-room house, of which there are 13 in number, contain a living room, which, combined with the hall, is 14.6 by 22.4; a dining room 11 feet 4 by 12 feet; a kitchen 11 feet 4 by 10 feet; a front porch 7 feet by 20 feet; a rear porch 7 feet 6 by 11 feet 3. On the second floor, three bedrooms 10 feet by 14 feet 10; 12 feet by 13 feet 6; 8 feet 2 by 10 feet; and a bathroom.

Senator VARDAMAN. Have you any data by which you can tell the committee the cost of a house of that size?

Mr. ACKERMAN. No.

The CHAIRMAN. How many seven-room houses have you there?

Mr. ACKERMAN. Thirteen.

Senator BANKHEAD. These are all frame houses, are they?

Mr. TAYLOR. These are all frame—stucco houses.

Senator BANKHEAD. Can you tell the committee how much it cost for the material—for the lumber—to build these houses?

Mr. ACKERMAN. No, sir. The price of lumber was fixed for us, and we had to pay it.

Senator BANKHEAD. Well, you ought to know that; or else how could you know the cost of the house?

Mr. TAYLOR. Our estimating department could tell you that, but I have not the figures with me.

Senator BANKHEAD. You can not tell the rate paid for labor, either, then?

Mr. TAYLOR. No, sir; that was fixed for us under the Baker-Gompers agreement.

Senator BANKHEAD. They made out the estimate of the cost of this house for you; you did not make it?

Mr. TAYLOR. The estimates were made in the Division of Passenger Transportation and Housing.

Senator BANKHEAD. Can you not give us that information, then?

Mr. TAYLOR. No, sir; I did not bring it with me.

Senator BANKHEAD. But you can get it, can you not?

Mr. TAYLOR. Yes, sir.

Senator BANKHEAD. If you can not tell us how much you paid for lumber and how much for labor, then you can not tell us how much the houses cost?

The CHAIRMAN. Mr. Taylor can supply that information when he revises his statement.

Mr. TAYLOR. I shall do so.

Senator HARDING. I asked Mr. Taylor to state the plan of contract; and if he will do that, it will give the information desired by Senator Bankhead.

Mr. TAYLOR. I shall do so.

Senator BANKHEAD. All I want to know is what the lumber cost and what the labor cost per day, and then I can make some kind of estimate as to what the building cost.

Mr. TAYLOR. I shall be very glad to furnish that information.

(The statement referred to was subsequently submitted by Mr. Taylor, and is here printed in full, as follows:)

UNITED STATES SHIPPING BOARD,
EMERGENCY FLEET CORPORATION,
*Philadelphia, Pa., January 11, 1919.*

From: W. G. Luce, Chief of Construction.
To: A. Merritt Taylor, Manager Passenger Transportation and Housing Division.
Subject: Jacksonville.

In compliance with the request of the Senate Committee on Commerce, I herewith hand you schedule of prices on material and labor used at Jacksonville, Fla.

In this connection I would call your attention to the fact that this is simply the scale of wages paid, and necessarily does not cover the matter of overtime, transportation of either labor or material, or the decreased output because of labor conditions.

The material prices, except as noted, are those at which the War Department bought our materials. The list from the War Department covering southern pine forms the basis of lumber prices, and we believe all necessary information is contained therein.

W. G. LUCE, *Chief of Construction.*

UNITED STATES SHIPPING BOARD,
EMERGENCY FLEET CORPORATION,
*Philadelphia, Pa., January 10, 1919.*

SCHEDULE OF RATES PAID TO LABOR ON PROJECT NO. 19—S, JACKSONVILLE, FLA., TAKEN FROM PAY ROLL FOR WEEK ENDING DECEMBER 21, 1918.

Laborers, 25, 35, 38, 40, 50, 60, and 75 cents; mostly all listed at 35 cents.
Calkers, 45 to 50 cents.
Roofers, 50 to 60 cents.
Watchmen, $3 and $6 per day.
Foremen, $6, $7, $7.50, and $8 per day.
Plasterers, 75 to 87½ cents per hour.
Painters, 60 cents per hour.
Electricians, 80 to 85 cents per hour.
Lathers, 75 cents per hour.
Cement finishers, 75 cents per hour.
Masons, 75 cents per hour.
Carpenters, 60, 65, and 70 cents per hour; mostly 60 cents per hour.
Teams, 87 cents to $1 per hour; two only teams at 50 cents per hour.
Automobiles, $6 per day.
(Overtime statement.)

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EXAMPLE OF PRICES PAID FOR MATERIAL FOR HOUSING PROJECT AT JACKSONVILLE, FLA., TAKEN AT RANDOM.

[All prices f. o. b. shipping point.]

Cement, $2.71 per barrel gross.
Brick, $10.50 per thousand, tentative price; final price probably 50 per cent advance.
Plaster board, $17.25 per thousand square feet.
Patent plaster, $15 per ton.
Common lime, $13.50 per ton.
Hydrated lime, $10 per ton from Ohio.
Plaster Paris, $15.50 per ton.
Wood lath, $3.50 per thousand.
Terra-cotta pipe. 15-inch, 70 cents per foot; 18-inch, $1 per foot; 20-inch, $1.25 per foot.
Flue lining, 8 by 12, 24 cents per foot; 8 by 8, 17 cents per foot.
Lumber: All bought from Georgia-Florida Pine Emergency Bureau at Government fixed prices. Price list hereto attached.
Millwork: Example of price as per attached list.
Nails: Common, $3.50 per keg base; cut flooring, $5.10 per keg.
Hardware: Shedds Patent Blind Fasts, $1.03 per set; wire coat and hat hooks, 83 cents per gross; wood base knobs, $1.40 per gross. (General interior hardware placed on lump-sum basis, about $17 per house.)
Electric material: Triple braided weather-proof wire, 30 cents per pound; transformers, $106 each; lightning arrestors, $3.37 each; street fixtures, $3.20 each; electric house fixtures, average, $15 per house.
Water pipe: 8-inch cast-iron pipe, $60 per ton; fittings for same, $120 per ton.
Fire hydrants, $42 each.
6-inch gate valves, $20.80 each.
Gas pipe: 8-inch cast iron, $56 per ton; 4-inch cast iron, $59 per ton.
Paint: Oil stain, 90 cents per gallon; fire retardant exterior paint, $1.92 per gallon.
Kitchen ranges: $48.70 each.
Gas water heaters, $8 each.
Window shades, $1.06 each.
NOTE.—All plumbing materials and fixtures, and all electric wiring material was bought locally or upon contract; also all roofing material.

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MAXIMUM PRICES FOR AND PROCEDURE FOR DISTRIBUTION OF SOUTHERN OR YELLOW PINE LUMBER.

WAR INDUSTRIES BOARD, *September 26, 1918.*

At a hearing of the manufacturers of southern or yellow pine lumber before the Price Fixing Committee of the War Industries Board, on September 23,

1918, it was agreed that the ruling of June 14, 1918, fixing maximum f. o. b. mill prices on southern or yellow pine lumber, should remain in effect from midnight September 23 to midnight December 23, 1918, inclusive.

It was also decided by the Price Fixing Committee and the representatives of Government departments that inclusive within these dates timber prices on the lumber schedule should apply to all shipments to Government departments, including the Emergency Fleet Corporation.

It was decided by the Price Fixing Committee that the interpretation of the terms of sale should be as follows:

The usual trade practices shall continue, including 2 per cent off for cash within 10 days from date of invoice to be applied to United States Government purchases as well as all others (except in special cases where former trade practice has well established net cash terms, and except as to export shipments to foreign countries). In transactions where purchases do not avail themselves of cash discounts, the terms shall be 60 days net from date of invoice, and in such transactions the accounts may be converted into trade acceptances which do not bear interest before maturity.

As regards the requirement by the Railroad Administration that shippers shall bulkhead the ends of open freight cars, it was decided that an extra charge for lumber and labor for constructing bulkheads may be made by the shipper and invoiced to consignee, irrespective of whether or not for Government or civilian use.

On the readjustment of item prices, it was decided that the director of lumber, in conference with the War Service Committee of the manufacturers, should have discretion to make certain minor changes and corrections in the item prices, which, however, should not affect the average base price.

As to price concessions made by manufacturers to wholesale distributors, it was decided to incorporate in the present announcement a former statement; to wit:

That in cases where manufacturers make reductions from the maximum prices to wholesale dealers, the reductions should be considered in the nature of an allowance to cover the expense and profit of sales by wholesale dealers and should not be interpreted as constituting a general reduction in the market price of lumber to the trade.

F. W. TAUSSIG,
*Acting Chairman Price Fixing Committee.*

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GOVERNMENT MAXIMUM PRICE LIST (F. O. B. MILL).

*Government yellow pine or southern pine maximum prices effective midnight Sept. 23 to and including Dec. 23, 1918, covering States of Missouri, Arkansas, Texas, Oklahoma, Louisiana, Mississippi, Tennessee, Georgia, Florida, and Alabama.*

| | B. and btr. hrt. rift. | B. and btr. rift. | B. and btr. | No. 1 common. | No. 2 common |
|---|---|---|---|---|---|
| 1 by 3 inch flooring, kiln dried | $54.00 | $48.00 | $36.00 | [1] $34.00 | $26.00 |
| 1¼ by 3 inch flooring, kiln dried | 66.00 | 60.00 | 48.00 | | |
| 1 by 4 inch flooring, kiln dried | 52.00 | 46.00 | 34.00 | [1] 32.00 | 25.00 |
| 1¼ by 4 inch flooring, kiln dried | 63.00 | 57.00 | 45.00 | | |
| 1 by 6 inch flooring, kiln dried | | | 36.50 | [1] 33.00 | 26.00 |
| 1 by 3 to 6 inch flooring, kiln dried | | | | | 25.00 |
| 1 by 4 and 6 inch flooring, kiln dried | | | | | 25.00 |
| ½ by 4 inch ceiling, kiln dried | | | 30.50 | 29.00 | 22.50 |
| ⅝ by 4 inch ceiling, kiln dried | | | 32.00 | 30.50 | 23.50 |
| ¾ by 4 inch ceiling, kiln dried | | | 35.00 | 33.00 | 24.50 |
| ¾ by 4 inch partition, kiln dried | | | 37.00 | 34.00 | 26.00 |
| ¾ by 6 inch partition, kiln dried | | | 39.50 | 36.50 | 27.00 |
| 1 by 6 inch drop siding, kiln dried | | | 35.00 | 32.50 | 26.00 |
| Bevel siding from 1-inch stock, kiln dried | | | 25.00 | 23.00 | 19.00 |
| Bevel siding from 1¼-inch stock, kiln dried | | | 27.50 | 25.50 | 21.00 |

[1] Denotes grade as per rule on flooring.

Add $1 per thousand feet for specified lengths.
For air-dried flooring deduct $1 per thousand feet.

*Government yellow pine or southern pine maximum prices effective midnight Sept. 23 to and including Dec. 23, 1918, etc.*—Continued.

| Kiln-dried finish, smooth 2 sides. | B. and btr. | C. | No. 1 common. | No. 2 common. |
|---|---|---|---|---|
| 1 by 4 inch, random | $35.50 | $32.00 | | |
| 1 by 6 and 8 inch, random | 37.00 | 34.00 | | |
| 1 by 10 inch, random | 38.00 | 35.50 | | |
| 1 by 12 inch, random | 39.00 | 36.00 | | |
| 1 by 4 to 12 inch, random | 37.00 | 34.00 | | |
| 1¼ by 4 to 8 inch, random | 42.00 | | $36.50 | $31.00 |
| 1¼ by 10 and 12 inch, random | 44.00 | | 38.50 | 33.00 |
| 1½ by 4 to 8 inch, random | 42.00 | | 36.50 | 31.00 |
| 1½ by 10 and 12 inch, random | 44.00 | | 38.50 | 33.00 |
| 2 by 4 to 8 inch, random | 42.00 | | | |
| 2 by 10 and 12 inch, random | 44.00 | | | |
| Molded casing and base from 1 by 4, 6 and 8 inch stock | 43.00 | | | |
| Molded casing and base from 1 by 5 and 10 inch stock | 45.00 | | | |
| Jambs from 4/4 stock | 43.00 | | | |
| Jambs from 5/4 and 6/4 stock and 8/4 | 48.00 | | | |

The above prices are for S2S finish; for S4S add 50 cents per thousand feet; for specified lengths add $1 per thousand feet; for rough deduct 50 cents per thousand feet.

NOTE.—C. and Btr. short-leaf finish, base, casing, and jambs manufactured in the States of Missouri, Oklahoma, and Arkansas, may be sold at $3 per thousand higher than above prices.

Moldings: 1⅜-inch width and smaller, 55 per cent discount; 1¾-inch and wider, 50 per cent discount.

*Boards.*

| | 1 by 2 inches. | 1 by 3 inches. | 1 by 4 inches. | 1 by 6 inches. | 1 by 8 inches. | 1 by 10 inches. | 1 by 12 inches. | 1 by 4 to 12 inches. |
|---|---|---|---|---|---|---|---|---|
| Smooth 1 or 2 sides: | | | | | | | | |
| No. 1 | $29.50 | $30.50 | $28.50 | $29.50 | $29.50 | $29.50 | $32.50 | |
| No. 2 | | 25.50 | 23.50 | 24.50 | 25.50 | 25.50 | 27.50 | $25.50 |
| No. 3 | | | 20.50 | 21.00 | 21.50 | 21.50 | 22.00 | 21.00 |
| No. 4 | | | | | | | | 15.00 |

For 1-inch No. 1 and No. 2 common in specified lengths add 50 cents, except 16-foot, for which add $1.

For D. and M., D. 4 S., and ship-lap, 8 inches and wider, add $1 to S. 2 S. price.

For 3-inch, 4-inch, and 6-inch D. and M. or S. 4 S., use flooring price.

For resawing or ripping, add $1 per thousand feet.

For D. and M. and beaded, 8 inches and wider, add $2 to S. 2 S. price.

For grooved roofing, 8 inches and wider, add $1 to S. 2 S. price.

For rough price deduct 50 cents from S. 2 S. price.

For boards when ordered kiln-dried, add $1 per thousand feet.

*Dimensions (long or short leaf).*

| | 12, 14, and 16 feet. | 10, 18, and 20 feet. | 22 and 24 feet. | Random. |
|---|---|---|---|---|
| 2 by 2, No. 1 common, S. 1 S. 1 E | $24.50 | $26.50 | $28.00 | $24.50 |
| 2 by 3, No. 1 | 23.00 | 24.00 | 25.50 | 23.00 |
| 2 by 4, No. 1 | 23.50 | 25.50 | 27.00 | 23.50 |
| 2 by 6, No. 1 | 22.00 | 23.00 | 24.50 | 22.00 |
| 2 by 8, No. 1 | 23.00 | 25.00 | 26.50 | 23.00 |
| 2 by 10, No. 1 | 23.50 | 25.50 | 27.00 | 23.50 |
| 2 by 12, No. 1 | 25.50 | 27.00 | 28.50 | 25.50 |
| 2 by 2, No. 2 common, S. 1 S. 1 E | 23.00 | 26.00 | 26.50 | 23.00 |
| 2 by 3, No. 2 common, S. 1 S. 1 E | 21.50 | 22.50 | 24.00 | 21.50 |
| 2 by 4, No. 2 common, S. 1 S. 1 E | 22.00 | 24.00 | 25.50 | 22.00 |
| 2 by 6, No. 2 common, S. 1 S. 1 E | 20.50 | 21.50 | 23.00 | 20.50 |
| 2 by 8, No. 2 common, S. 1 S. 1 E | 21.50 | 23.50 | 25.00 | 21.50 |
| 2 by 10, No. 2 common, S. 1 S. 1 E | 22.00 | 24.00 | 25.50 | 22.00 |
| 2 by 12, No. 2 common, S. 1 S. 1 E | 24.00 | 25.50 | 27.00 | 24.00 |
| 2 by 4 and 2 by 8, No. 3 common, S. 1 S. 1 E. (8 to 20 feet) | | | | 17.00 |
| 2 by 6, No. 3 common, S. 1 S. 1 E. (8 to 20 feet) | | | | 16.50 |
| 2 by 10, No. 3 common, S. 1 S. 1 E. (8 to 20 feet) | | | | 17.50 |
| 2 by 12, No. 3 common, S. 1 S. 1 E. (8 to 20 feet) | | | | 18.00 |

Dimension when ordered sized one-fourth inch scant in thickness and or width, add $2 per thousand feet.

Dimension when ordered kiln dried, add $2 per thousand feet.

Dimension B. and M. or shiplap add $1 per thousand to S. 1S. 1E. prices: Rough 50 cents less than S. 1S. 1E. prices; S. 4S. add 50 cents per thousand to S. 1S. 1E. prices.

For No. 1 common, dimension over 24 feet, add $1 for each 2 feet up to 32 feet.

For merchantable long leaf, 10 inches and under wide, add to above $3 per thousand feet.

For merchantable long leaf, 12 inches and over wide, add to above $2 per thousand feet.

NOTE.—All lumber not over 2 inches thick when ordered in odd or fractional lengths will be invoiced as of next longer length in multiples of 2 feet.

*Timber.*

| | 10 to 20 feet. | 22 and 24 feet. | 26 feet. | 28 feet. | 30 feet. | 32 feet. |
|---|---|---|---|---|---|---|
| 3 by 4 and 4 by 4 | $25.00 | $26.00 | $27.00 | $28.00 | $29.00 | $30.00 |
| 3 by 6 to 8 by 8 | 24.00 | 25.00 | 26.00 | 27.00 | 28.00 | 29.00 |
| 3 by 10 to 4 by 10 | 28.00 | 29.00 | 30.00 | 31.00 | 32.00 | 33.00 |
| 5 by 10 to 10 by 10 | 27.00 | 28.00 | 29.00 | 30.00 | 31.00 | 32.00 |
| 3 by 12 to 5 by 12 | 30.00 | 31.00 | 32.00 | 33.00 | 34.00 | 35.00 |
| 6 by 12 to 12 by 12 | 29.00 | 30.00 | 31.00 | 32.00 | 33.00 | 34.00 |
| 2 by 14 to 5 by 14 | 35.00 | 36.00 | 37.00 | 38.00 | 39.00 | 40.00 |
| 6 by 14 to 8 by 14 | 34.50 | 35.50 | 36.50 | 37.50 | 38.50 | 39.50 |
| 10 by 14 to 14 by 14 | 34.00 | 35.00 | 36.00 | 37.00 | 38.00 | 39.00 |

Add for timbers over 14 inches, $3 for each 2 inches over 14 inches.

Add for timbers over 32 feet, $1 for each foot over 32 feet.

Prices above are for short leaf No. 1 common rough; for better qualities and various working apply the following differentials:

For long leaf No. 1 common, add $2 per thousand feet.

For merchantable 10 inches and smaller, add $3 per thousand to No. 1 long-leaf price.

For merchantable 12 inches and larger, add $2 per thousand to No. 1 long-leaf price.

For prime rule of 1905, add $5 to No. 1 long-leaf price.

For 85 to 90 per cent cubical contents heart, 12 inches and under, add to No. 1 common long leaf $3 per thousand.

For 85 to 90 per cent cubical contents heart, 14 inches, add to No. 1 common long leaf $3.50 per thousand.

For 85 to 90 per cent cubical contents heart, 16 inches, add to No. 1 common long leaf $4.50 per thousand.

For 85 to 90 per cent facial area heart, 12 inches and under, add to No. 1 common long leaf $5 per thousand.

For 85 to 90 per cent facial area heart, 14 inches, add to No. 1 common long leaf $5.50 per thousand.

For 85 to 90 per cent facial area heart, 16 inches, add to No. 1 common long leaf $6.50 per thousand.

For all heart timbers, 12 inches and under, add to No. 1 common long leaf $7 per thousand.

For all heart timbers, 14 inches, add to No. 1 common long leaf $8 per thousand.

For all heart timbers, 16 inches, add to No. 1 common long leaf $10 per thousand.

For standard heart timbers, 12 inches and under, add to No. 1 common long leaf $4 per thousand.

For standard heart timbers, 14 inches, add to No. 1 common long leaf $5.50 per thousand.

For standard heart timbers, 16 inches, add to No. 1 common long leaf $6.50 per thousand.

For heart face—one face only, 12 inches and under, add to No. 1 common long leaf $4.50 per thousand.

For heart face—one face only, 14 inches, add to No. 1 common long leaf $5 per thousand.

For heart face—one face only, 16 inches, add to No. 1 common long leaf $6 per thousand.

Add for dressing, $1 per thousand feet.

Add for T. and G. or shiplap, $2 per thousand feet.

Add for grooving, $3 per thousand to dressed price stock 3 and 4 inches thick.

Add for grooving, $5 per thousand to dressed price stock 6 inches and thicker.

Add for beveling and outgauging, $2 per thousand feet to dressed pieces.

NOTE.—All timber when ordered in odd or fractional lengths will invoice as of next longer length a multiple of 2 feet.

Add $1 to list when ordered cut on fractional sizes. Prices on fractional sizes will be determined as follows: Sizes containing fractions under one-half inch shall take price of next smaller size listed. Sizes containing fractions half inch or greater shall take price of next larger size listed. For example: 5¼ by 8¼ inches will take price of 6 by 8 plus $1; 5½ by 8¾ inches will take price of 6 by 10 plus $1.

*Ship decking (United States Navy Specifications 39 P1B).*

| | |
|---|---|
| 4½ by 4½ and smaller when not more than 1 inch off square | $100 |
| 3½ by 5½ and smaller when difference between thickness and width is over 1 inch | 116 |

*Export prices—"Grading as per Gulf Coast Specifications of 1910."*

PRIME.

| | |
|---|---|
| 1 inch, random widths and lengths | $47.00 |
| 1¼ inches, random widths and lengths | 52.00 |
| 1½ inches, random widths and lengths | 52.00 |
| 2 inches, random widths and lengths | 52.00 |

GENOA OR RIO PRIME DEALS.

| | |
|---|---|
| 3 to 5 inches thick, 4 to 3 inches wide, 16 feet and up, to average 24 feet | $32.00 |
| 3 to 5 inches thick, 9 and 10 inches wide, 16 feet and up, to average 24 feet | 36.00 |
| 3 to 5 inches thick, 11 and 12 inches wide, 16 feet and up, to average 24 feet | 40.00 |

MERCHANTABLE SAWN TIMBERS.

| | |
|---|---|
| Regular cubic average: | |
| 30 cub | $33.50 |
| 32½ cub | 35.00 |
| 35 cub | 36.50 |
| 37½ cub | 38.00 |
| 40 cub | 40.00 |
| No. 1 standard yellow pine lath, 32½ cub | 3.65 |
| No. 2 standard yellow pine lath, 32½ cub | 2.65 |

Senator CALDER. Were these houses built on piers or foundations, or was there a cellar?

Mr. TAYLOR. There was no cellar under the house; it is not customary to build houses with cellars down there.

Mr. ACKERMAN. These were concrete piers only.

Senator CALDER. They were not built on a continuous wall, but just built on piers?

Mr. ACKERMAN. Yes.

Senator RANSDELL. You said "piers," but it is not a pier, but a concrete wall rather than a pier, or a "pillar," as we call them down there.

Mr. ACKERMAN. Yes.

Mr. TAYLOR. May I make that statement now?

Senator HARDING. Yes; I shall be very glad to have you do so.

Mr. TAYLOR. Our plan of procedure in awarding contracts was carefully gone into before the Committee on Appropriations of the Senate when I was here advocating the making of the appropriations. We have adhered strictly to the program which I then outlined to that committee, and it will be found a matter of public records in the proceedings of that committee.

We paid our contractors a fixed fee in every case for the use of their office organization and head man; the fee did not vary with the cost, and was simply a lump sum.

Then, we purchased the material for each operation through the Construction Division of the United States Army at the prices fixed by the Government.

Hence we had no control whatever over the price of materials; we had to buy through the Construction Division, and we had to pay the price that they charged us for it, namely, what they had fixed as the Government price, and we paid that. The Construction Division placed the orders for this material, and we simply had to pay the bill, whatever it was.

Senator VARDAMAN. What per cent fee did you pay to the contractor?

Mr. TAYLOR. I am coming to that; I was just finishing with this one feature.

Senator VARDAMAN. I beg your pardon for interrupting you.

Mr. TAYLOR. Yes, sir; but I will finish this first, if you please. We also had no control whatever over labor costs. The wage scale for all classes of labor was fixed first under the Baker-Gompers agreement.

Senator HARDING. That is perfectly understood.

Mr. TAYLOR. And we had to pay it. Hence, the question of cost was entirely beyond our control unless we designed something extravagant or unduly large for the purposes which it was designed to serve—and I do not think we did.

The only control we had was over contractors' fees; we could not control the amount of overtime that labor put in. The labor conditions were so acute that various Government activities and industries engaged in Government work were subsidizing labor by permitting workmen to remain at work 10 hours a day instead of 8, whereby they got paid for 3 hours additional when they only worked 2.

Senator HARDING. And Sunday work.

Mr. TAYLOR. Yes; Sunday work, and a great deal of Saturday afternoon work.

Senator CALDER. Do you pay double time?

Mr. TAYLOR. There are certain mechanics who get double time for all overtime work, whether on Sunday, Saturday afternoon, or during the week; there are some trades which get time and a half during the week and double time Saturday afternoon and Sunday. Ordinary labor usually gets time and a half for overtime, including Saturday afternoons, and in some cases double time.

Senator RANSDELL. Have you any information as to what losses there would be on these houses——

Senator HARDING (interposing). Let him finish with his statement first.

Senator RANSDELL. I beg your pardon; I thought you were through.

Senator HARDING. This is a very interesting thing to me.

Mr. TAYLOR. After we were embarked on this work, the price of labor was advanced by the Government, under the Baker-Gompers agreement. The price of labor was also advanced by the necessity of our employing labor overtime, in competition with other industries in the district; it really amounted to a large subsidy to labor. Had we not thus subsidized the workmen in the district, they would not have worked on our projects. We had to meet prevailing conditions in that district, or we could not get the work done.

Furthermore, we had to bring our own materials, in many instances, long distances, by reason of Government requirements. I have in mind a bridge up in Portsmouth, N. H., where the lumber for building that bridge, bought through the Construction Division of the United States Army, was brought from Portland, Oreg., or thereabouts, when we could have obtained the lumber within a hundred miles. I do not say that in a critical way. I believe there is some valid reason that we did not know about; yet we had to pay the additional freight; the freight amounted to $4,800 on that lumber.

Senator HARDING. For one bridge?

Mr. TAYLOR. Yes, and the whole cost of the bridge was only $16,000.

Senator HARDING. War is hell. [Laughter.]

Mr. TAYLOR. We were put there to deliver the goods, and our organization was trying to do it.

Senator HARDING. This is very interesting to me; but I want to bring you back to the thing you were speaking of.

Mr. TAYLOR. Yes, sir.

Senator HARDING. And that is the contractor's compensation.

Mr. TAYLOR. I would like to give you a schedule of what we paid them, and what per cent it was of the total contract. And I would like to say that the fees which we paid to our contractors on these housing projects are very much less in proportion to the cost of the projects than were the fees of the War Department, as fixed in the third conference, was it not, Mr. Luce?

Mr. LUCE. In the third bulletin.

Mr. TAYLOR. Less than those prescribed in the third bulletin of the Construction Division of the Army. The contractor's fees were as follows:

At Hog Island, for dormitories, $30,000—I shall only carry the figures out to the thousandth of 1 per cent. Or would tenths be sufficient?

Senator HARDING. Any fraction would be sufficient.

Mr. TAYLOR. That at Hog Island is approximately 1.5 per cent.

Hilton Village, contractor's fee, $50,000, approximately 1.3 per cent; Yorkship Village, contractor's fee, $168,000, approximately 1.34 per cent.

Senator HARDING. Now, let me interrupt you. I take it that all the figures will run approximately that percentage—that is, the——

Mr. TAYLOR (interposing). I want to look down this column on this table [indicating] before I answer that. On the Westinghouse dormintories, 4.1 per cent.

Senator VARDAMAN. I would like to interrupt you right there: Would you state what are included in the machinery that you paid

this fee for the use of—and for the organization. For instance, on work like this down here on the Union Station Plaza [indicating]——

Senator LENROOT (interposing). They do not have that under their jurisdiction.

Senator VARDAMAN. I understand that; but they had something like that.

Senator LENROOT. I suppose so.

Senator VARDAMAN. Now, what is it that you are paying for?

Mr. TAYLOR. May I finish this statement before answering? I want to make this statement absolutely fair. In general, the fees ran from 1 to 4.5 per cent. In the latter case, they were very small jobs.

Senator HARDING. I can see that difference. Now, in brief, what did that cover?

Senator VARDAMAN. Yes; what were you buying from the contractor? What were you getting from the contractor?

Mr. TAYLOR. We were buying his ability in knowing how to supervise the construction of a big contract of this character.

Senator HARDING. Was that his sole compensation?

Mr. TAYLOR. That was the contractor's sole compensation; yes, sir.

Senator HARDING. You hired nothing from him?

Mr. LUCE. In some cases we hired machinery at the going rate in that locality.

Senator VARDAMAN. That was additional, then, to this 1 per cent?

Mr. TAYLOR. May I add something for the record? I did not notice that the average is given here. [Indicating.] The average fee which we paid contractors on all contracts was 1¾ per cent. That will give you a very fair idea of it.

Senator VARDAMAN. I am not clear as to what the contractor furnished that you paid that 1¾ per cent for; was that his "know how"?

Mr. TAYLOR. That was his overhead—office organization at the home office.

Senator VARDAMAN. Did that include any machinery that his organization contributed?

Mr. TAYLOR. No; but it included his main superintendent on the project.

Senator VARDAMAN. Now, where you used machinery that belonged to him you paid the usual price for that, I presume?

Mr. TAYLOR. Yes; the usual rental.

Senator VARDAMAN. You have not figured what that amounted to in a contract?

Mr. TAYLOR. No; because it was the same amount that anybody else would have paid, and it was not a question of profits that we calculated in connection with that machinery; after we had paid a rental equaling the value, the title to that machinery would go to the Government, and thereby we prevented the Government from losing money by the transaction.

Senator VARDAMAN. You have not taken over any machinery, then?

Mr. LUCE. Yes, sir; we are taking over some now. And also I would like to add that we provided for acquiring the machinery by paying the difference and taking it over when we thought it was a good investment.

Senator RANSDELL. The rentals you paid to the contractor were no more than would have been paid by some other person for the same machinery?

Mr. TAYLOR. No, sir; they were the market prices.

Senator VARDAMAN. I am sorry that I have to leave now, Mr. Chairman, but I will be glad to read the record of Mr. Taylor's testimony.

Senator RANSDELL. Senator Lenroot, would you not like to have Mr. Taylor tell about some of the more expensive projects?

Senator LENROOT. Yes.

Senator RANSDELL. I suggest you do so, Mr. Taylor.

Senator LENROOT. I would like to ask just one question that will apply to all: You say you have not prorated the cost as to the particular houses; now, you will have to do that when you come to sell them.

Mr. TAYLOR. The cost has nothing to do with the sale value. We will have to sell all of our houses at less than cost.

Senator LENROOT. I understand that.

Mr. TAYLOR. It is a question of apportioning the value, appraising each type of house, and fixing as to that house what it is really worth.

Senator LENROOT. But the cost will be an element of that?

Mr. TAYLOR. In all these cases we can determine, with a reasonable degree of accuracy, the cost by taking the relative cubic contents——

Senator LENROOT. Of the whole structure?

Mr. TAYLOR. Of the whole structure; that is really a very fair method of taking it.

Senator LENROOT. What I was getting at was this: You take a seven-room house or a more expensive house in this particular project, approximately what would you estimate the cost of that to be—the more expensive house?

Mr. TAYLOR. We have houses costing all the way up, in one extreme case, to $8,200.

Senator LENROOT. That is a very exceptional case.

Mr. TAYLOR. That is very exceptional; that is in the Westinghouse plant, in that terribly congested district.

Senator LENROOT. And your plan is to sell those houses to workmen?

Mr. TAYLOR. I want you to consider a plan of action, after you have heard all the facts, because the officers of the Fleet Corporation are very anxious to dispose of these houses rather than have the Government retain them, and to do it in tune with the sentiment of the country, as expressed by your committee.

Senator LENROOT. My question was a general question, and we can go more into detail later. But in the construction of these houses did you take into consideration the amount that a workman would be able to pay for a house?

Mr. TAYLOR. In connection with the cost?

Senator LENROOT. Or selling it?

Mr. TAYLOR. Here is what we did: We built the cheapest houses that we could under the conditions that would produce the desired results, namely, giving the workman the very minimum that would suit his purpose and at the same time attract labor to the shipyards

to build the ships. It was really a broad business proposition which we handled in a very broad and quick way.

Senator LENROOT. Let me ask you this question: On these houses, suppose there was a write-off of 50 per cent of the cost, do you have any figures to show that the workmen might be able to buy these houses with the writing off of a certain percentage of the cost?

Mr. TAYLOR. Not a stated per cent at each place, because the cost varied entirely.

Senator LENROOT. I understand that.

Mr. TAYLOR. What we aimed to do was to build a house that would be the most economical for the purpose which we had to serve, namely, to get the men there to build the ships, and we kept down the size and the character of construction to the very minimum that was consistent with bringing the labor into those shipyards to build the ships. That was the one thing that was uppermost in my mind, and that we stuck to all the way through.

Senator CALDER. Have you sold a single one of these houses?

Mr. TAYLOR. No, sir; except in Philadelphia; Admiral Bowles may have sold a few of those row houses.

With a write-off of less than the excess war cost, they will all be within the means of the workingman to buy them, or to rent them, on a reasonable return.

Senator LENROOT. That is what I wanted to know.

Mr. TAYLOR. I did not catch the drift of your question, or I could have answered it more concisely at first.

Senator RANSDELL. About what would that rate be? Can you give us an idea, roughly, as to what?

Mr. TAYLOR. When our original appropriation was made by the Senate, the subject was very freely debated in the Senate, as is shown by the Congressional Record, which I have here with me; and it was then freely predicted that the loss to the Government would be about one-half of the amount invested.

When the subject came before the Committee on Appropriations of the Senate last June it had been provided that there would be a write-off of not exceeding 30 per cent in the agreements established; and I then informed Mr. Piez, who appeared before the Appropriations Committee, that I thought that the write-off would be more than that; it would be at least 35 per cent.

Now, owing to things that have happened since that time, namely, the increase in the cost of labor and of material, that have been forced upon us, and the necessity for overtime work, the necessity for importing these mechanics from distant points to build these houses, and the necessity of carrying many long distances to and from their work in special trains free of cost to them and for absorbing the car fares of others, where we did not run special trains, and owing to the vast labor turnover that we had in the congested districts, I think that our permanent houses, that is, frame and brick—in saying "perminent houses" I mean to exclude temporary barracks, hotels, and dormitories—will bring us, on an average, probably about 60 per cent of their cost, instead of 50 per cent, as predicted in the Senate when the appropriation was made, with the exception of perhaps one or two instances.

Senator LENROOT. Is that on the assumption that the activities of the shipyards will continue as they are, or have been, so that there will be the same demand for workers in those houses?

Mr. TAYLOR. The housing developments which we have built, generally speaking, are available to diversified industries, and are not solely dependent upon the shipyards which they were primarily designed to serve.

Senator LENROOT. Take the case of the Bristol yard, for instance; is that true of the Bristol yard?

Mr. TAYLOR. The Bristol yard is not available to diversified industries, as is the case with most of the others, because Bristol is located a little more than midway between Philadelphia and Trenton, and the time and cost of travel which workmen would be subjected to in traveling from that Bristol project to either Trenton or Philadelphia would be a very serious barrier against their living in the project.

Senator LENROOT. So that, in that project, your estimate would be dependent upon the shipbuilding continuing in the Bristol yard?

Mr. TAYLOR. Yes, sir; in that case—to a large extent—but in many other cases it would not.

Senator LENROOT. Oh, I understand that.

Mr. TAYLOR. I think in Portsmouth, N. H.—well, not to the same extent at Portsmouth. Lorain, Ohio, to an extent, is similar, although there you have the tube works, as well as the shipyards, to rely on; you have about 8,000 men in the tube works near by.

Senator LENROOT. Then, so far as the loss to the Government is concerned—I mean, speaking now of going on with housing—a house less than 50 per cent completed would be a loss to the Government to build under your estimate?

Mr. TAYLOR. That would depend on so many factors that I could not give you an offhand answer to that; it would depend largely on what commitments are outstanding for materials——

Senator LENROOT. I understand.

Mr. TAYLOR (continuing). And for land, and for public-utility construction underground, what return the Government would get by expediting ship production that is going on for the next year or two as the result of having those houses pressed. Now, I know that down in Wilmington, N. C., houses ought to be built there for service of the Government-owned yard. I recommended the building of a $500,000 housing project at that point. My judgment is that any loss that the Government would sustain in the write-off on account of the ultimate disposition of the houses at less than cost would be offset many times in expediting and saving in cost of ship production of the plant in question.

Senator RANSDELL. Do you mean at Wilmington, N. C.?

Mr. TAYLOR. At Wilmington, N. C.; yes, sir.

Senator LENROOT. Mr. Piez stated the other day that that project would not go on.

Mr. TAYLOR. That project, in my opinion, should go on; and I think that Mr. Piez is in accord with my judgment in that matter, and he has requested me to so state to the committee.

Senator LENROOT. That presents a very important question. The war is over. The necessity for great expedition is past. Is that the policy of your division, and of the Shipping Board, that they will go on and spend millions of dollars of the Government's money,

basing it solely upon the fact that ultimately it might be economical for the Government to do so?

Mr. TAYLOR. Our policy is this: We do not propose to do anything without the approbation of this committee, because we believe that you gentlemen interpret the true sentiment of the United States as to policy in this matter.

Senator LENROOT. Well, I am very glad to have that statement. Of course, you——

Mr. TAYLOR (interposing). And I should like to add this: We have already canceled as much as we could without wasting the Government's money in so doing.

Senator LENROOT. Of course, you appreciate that, from the standpoint of ultimate economy for the Government, that might be good business to go on with a project not begun, but from the standpoint of the revenues of the Government and the ability of the Government to find money to pay for it it might be a good thing not to go on with the project.

Mr. TAYLOR. Right here I would like to say, as to Wilmington, N. C., and Savannah, Ga.——

Senator RANSDELL (interposing). You said we ought to go ahead at Wilmington and build these houses. Will you not state clearly why you think so?

Mr. TAYLOR. Because at Wilmington the Government owns the shipyards, consisting of four ways.

Senator LENROOT. What kind of ships are those—cargo ships?

Mr. TAYLOR. Yes, freighters; and the cost of those will be very greatly reduced if the labor turnover which is now present at that yard is eliminated by the construction of houses. The labor shortage at Wilmington is most acute. We feel that the delay in shipbuilding at that point will be very material if houses are not constructed there in order to give an adequate labor supply, and the delay in the production of ships means added cost in the production of ships.

Senator LENROOT. Do you think that necessarily follows?

Mr. TAYLOR. I do.

Senator LENROOT. That is upon the assumption that the present high war basis of labor cost is to continue, is it not, Mr. Taylor?

Mr. TAYLOR. Well, to continue for some time; I do not think it will continue for a very long time.

Senator RANSDELL. What is the Government's investment in the Wilmington yard; do you know that?

Mr. TAYLOR. No, sir; we have not those figures.

Senator RANSDELL. I understand that; but it is considerably over $1,000,000, is it not

Mr. TAYLOR. Oh, yes; it is a four-way yard. I believe Mr. Aron has a picture of that.

Senator RANSDELL. And you think, in order to operate the plant successfully, it is necessary for the Government or somebody else to build these houses in that Government-owned yard?

Mr. TAYLOR. I will not go that far; I will say that the Government will save a great deal of money by so doing; the Government already owns the land.

Senator RANSDELL. It owns the land and the shipbuilding plant?

Mr. TAYLOR. Yes, sir; here is the photograph [indicating photograph].

Senator RANSDELL. Senator Simmons, Mr. Taylor has said that he thought the Government ought to go ahead and build houses for the workmen; that it had already acquired title to the land and expended over $1,000,000 in constructing four ways in the shipyard. You were not present at the time, and so I explain this to you.

Senator SIMMONS. Does that refer to both plants at Wilmington? One is a fabricated steel plant and one a concrete-ship plant. My understanding is that the Government has spent about $1,500,000 there.

Mr. TAYLOR. I said we had not the figures on the cost of these plants, but I believe it is well over $1,000,000. Of course that is merely my belief.

Senator RANSDELL. That is not the concrete plant [indicating on photograph].

Mr. TAYLOR. No, sir; this plant [indicating] is the steel-ship plant.

Senator SIMMONS. That is for cargo ships, is it not?

Mr. TAYLOR. Yes, sir; freighters.

Senator RANSDELL. Where is the other plant?

Mr. TAYLOR. About a mile nearer town.

Senator SIMMONS. What is the extent of the work that the Government has done at the steel-ship plant?

Mr. TAYLOR. They are building ships there.

Senator LENROOT. I do not think so.

Mr. TAYLOR. Yes; I think there are four keels laid.

Senator RANSDELL. These ways [indicating on photograph] look like they are about finished.

Senator SIMMONS. Do you remember the size of those ships?

Mr. TAYLOR. They are 9,600 dead-weight tons.

We are very anxious to be guided by the views of this committee in this and all other matters.

Senator LENROOT. Upon that I should just like to say, as an expression of my own opinion——

Mr. TAYLOR (interposing). We would like very much to have an expression of your opinion.

Senator LENROOT. I should be very glad if the committee would give an expression of its opinion upon that, but I should like to say that in my opinion Congress at this time, if it was going to act upon the matter originally, would not appropriate a single dollar for the construction of housing where there has been nothing whatever done with reference to it, because of the present financial situation.

Senator SIMMONS. But that is not the situation at Wilmington.

Senator LENROOT. Yes; it is, so far as houses are concerned.

Senator SIMMONS. No; not so far as the houses are concerned. The Government has spent nothing upon houses so far; but the citizens of Wilmington have spent a large sum in providing houses, especially for those works.

Senator LENROOT. I am not not talking about the works; I am not talking about suspension of the yard.

Senator SIMMONS. I am not either; you misunderstand me, or else I misunderstand you. I thought you said the Government had spent nothing up to this time for housing.

Senator LENROOT. No; I mean that under this project of $500,000 that they propose to expend they have done nothing.

Mr. TAYLOR. The Government has spent about $2,000,000 in the plants, I see in the annual report.

Senator LENROOT. I say that, in my opinion, Congress, if it was to act upon the question originally, would not authorize the Shipping Board to spend any more money for housing, where nothing has been done toward the beginning of those housing projects; but I would be very glad to have an expression from the committee later on on that matter.

Senator SIMMONS. Here is what I understand: I understand that the Government has spent about $2,000,000 in the construction and equipment of these two plants, one to build concrete ships, and the other to build fabricated steel ships; and that work has been begun in both of those plants upon the character of ships that each yard, respectively, is to build; and that in the fabricated plant it has reached a point where the keels have been laid. In the concrete-ship plant, I do not know how far they have gone, but I understand that they are constructing concrete ships there; that they are at work upon the ships.

Mr. TAYLOR. I am told by one of my assistants that they expect to begin this week.

Senator SIMMONS. The city of Wilmington had, at the time these plants were started, a large number of vacant houses. Wilmington had suffered from the war. The labor in that section had gone to South Carolina to work in the shipyards and cantonment, and had gone to Virginia to work in the shipyards and cantonments there; and that left about 400 or 500 vacant houses; something like that; I do not know exactly how many; perhaps not so many, but it left a great many vacant houses. Those houses have been filled by the workmen in those two shipyards. And the citizens of Wilmington have raised, I understand, a fund of a quarter of a million dollars and invested that in building houses in the proximity of those plants. Now they have exhausted their resources, and they are not able to go on with this building program; and yet the Government finds that it lacks housing space. Is that not the situation, Mr. Taylor?

Mr. TAYLOR. Yes, sir.

Senator LENROOT. Well, I have three shipyards in my own city. We are short of houses there; and I have no hesitation in saying that if the Government should take over one of those yards, private capital would be willing to furnish more than sufficient money to go in and build sufficient housing; and I think, now that the war is over and the need for this expedition is over, we should rely upon private capital to furnish the housing that is necessary—where nothing has been done, I mean.

Mr. TAYLOR. Yes. Well, I have adopted the policy, so far as my work is concerned, of canceling everything that could be canceled.

Senator LENROOT. I understand.

Mr. TAYLOR. But in these two cases of Wilmington, where we have a Government investment of $2,000,000, where it is a Government-owned yard, and where the Government will save a great deal upon the cost of building those ships, provided there is adequate labor there to finish them quickly and cheaply, it is a debatable subject.

And at Savannah, Ga., I feel that the shipbuilder there, in faith of our agreeing to lend him $350,000—instead of $750,000, as originally authorized, previous to the armistice—has gone ahead and bought his land; and in faith of the commitment by the Fleet Corporation, duly approved by the vice president and the board of trustees, he has bought material and had it routed in there, and has entered into ship contracts at a price which reflected his expectation of having adequate housing there which would enable him to build ships economically——

Senator LENROOT (interposing). Is that a lump-sum contract for ships?

Mr. TAYLOR. Yes; but we are only going to put up 120 houses for $350,000; they are cheap houses, and the shipbuilder is willing to guarantee that he would repay the Government the appraised value, not less than 70 per cent of the cost. So that there is a stop loss there.

Senator LENROOT. Yes; that is a stop loss there.

Mr. TAYLOR. And we had that in quite a number of cases.

Senator LENROOT. But where there is no protection of the Government, you yourself say that you think there will be 60 per cent of loss.

Mr. TAYLOR. I think there will.

Senator LENROOT. And that is why I do not think at this time the Government should undertake a large expenditure of money where there has nothing been done, and where there is sure to be such a tremendous loss to the Government.

Mr. TAYLOR. The average loss is from 40 to 50 per cent; I believe you said 60 per cent.

Senator LENROOT. I think you said, in connection with other factors, that it would run as high as 60 per cent. Perhaps I misunderstood you.

Mr. TAYLOR. No; the salvage.

Senator LENROOT. Of course, it would run higher——

Mr. TAYLOR (interposing). I was speaking of average.

Senator LENROOT. Of the average?

Mr. TAYLOR. On the permanent houses. Of course, the dormitories and temporary hotels are practically scrap at the end of the war, and have very little value; they have no value beyond the scrap value of the material contained therein.

Senator LENROOT. I understand.

The CHAIRMAN. What is the size of those houses at Savannah?

Mr. TAYLOR. Those houses at Savannah are very small, frame houses.

The CHAIRMAN. They are four or five rooms. Just give the details, please.

Mr. TAYLOR. They are approximately the same as the cheapest ones at Jacksonville, of which we have the pictures here [indicating].

The CHAIRMAN. At Wilmington there are two yards, one the concrete-ship yard and one the steel-ship yard.

Mr. TAYLOR. Yes, sir.

The CHAIRMAN. How many ways are there in each?

Mr. TAYLOR. Four at the steel-ship yard and four at the concrete-ship yard.

The CHAIRMAN. Did they reduce the number of ways there and the number of contracts for ships?

Mr. TAYLOR. I think at the steel-ship yard it was authorized to be a six-way yard and was cut to four ways, and at the concrete yard there has been a very material reduction. I understand that there have been two ways eliminated there.

The CHAIRMAN. Two ways eliminated there. But did they not start in to build eight ships there and then cut that down?

Mr. TAYLOR. I do not know about the concrete-ship yard; they cut down the concrete boats to two, I believe.

The CHAIRMAN. So that when those two are finished that is practically going to end the concrete yard, is it not, so far as the Government is concerned?

Mr. TAYLOR. It looks that way; of course I do not know.

The CHAIRMAN. So far as the Government is concerned it looks that way. In that case will they need the people there that you speak of?

Mr. TAYLOR. I believe, in view of the fact that we only counted on putting $75,000 into housing for the concrete-ship yard had it gone ahead full speed, the closing of the concrete yard will not materially affect the shortage of housing facilities now existing at that point. Mr. Bayles, of counsel for the Fleet Corporation, and Mr. Smith, assistant manager of my division, have been down there personally and can tell you in detail what the conditions are. They are very familiar with both Wilmington and Savannah.

The CHAIRMAN. How many men are there employed in the yards at Wilmington now, if you know?

Mr. TAYLOR. I can furnish that information in a few moments; I have it here. May we go ahead and let me furnish it later?

The CHAIRMAN. Yes. How many men are needed there, in addition to what you have accommodated or for ship construction?

Mr. TAYLOR. That is shown in the same figures, which I will have to furnish a little later.

Senator LENROOT. Is that on the basis of great expedition?

Mr. TAYLOR. That is on the basis of normal production at that yard.

Senator LENROOT. On the basis of normal production in peace times?

Mr. TAYLOR. Yes.

Senator LENROOT. What is the population of Wilmington?

Mr. TAYLOR. About 31,000.

The CHAIRMAN. Is the yard located right in the city?

Mr. TAYLOR. No; it is quite a little way out; it is farther out than the concrete-ship yard. [Exhibiting photograph to committee.] We have not gone ahead with it, and we do not want to go ahead unless we are absolutely in tune with the sentiment of this committee. We think it ought to be done. Mr. Piez and I both concur in that. We believe the $500,000 project at Wilmington should go forward, and that the $350,000 project at Savannah should go forward, especially in view of the fact that the shipbuilder in the latter case has bought his land, ordered his material, and has agreed to repay to the Government the appraised value, after the war is over, not less than 70 per cent of cost. That makes quite a difference.

Senator SIMMONS. Is that a Government yard?

Mr. TAYLOR. No, sir; a private yard; it is the Terry Shipbuilding Co.

Senator LENROOT. Mr. Chairman, I suggest that later we have a full meeting of the committee, and obtain an expression of view upon this matter.

Mr. TAYLOR. If you will give just an informal expression, we shall be very glad to have it and regard it highly.

The CHAIRMAN. All right; we can do that.

Senator SIMMONS Mr. Taylor, you said a while ago that the concrete-ship proposition had been reduced to two ships, and probably that would mean that that might be the extent of the Government's construction at that point?

Mr. TAYLOR. I said I did no know; I said on the surface it might appear so. I am not familiar with the policy of the Fleet Corporation with regard to the concrete yards.

Senator SIMMONS. Well, I think I am somewhat familiar with the policy, because I have had a number of conversations with both Mr. Hurley and Mr. Piez in reference to the construction of concrete ships not only at Wilmington but at other points in the United States. But I will not go into that. Is it not a fact that the construction at Wilmington of these concrete boats—and also at Brunswick, Ga.—is for the purpose of testing out the concrete-ship proposition; and if the test proves successful, is it not probable—or almost certain—that the Government will enter upon a larger program with reference to the construction of concrete ships?

Mr. TAYLOR. I am not as competent as you are to decide that question, Senator, because I have not devoted any attention to the concrete-ship problem.

Senator SIMMONS. Well, my understanding is that this was an experimental proposition, both at Wilmington and at Brunswick, Ga.; if the experiment proves successful, then the Government has its yard at Wilmington which it can operate to the point of production that may be thought advisable.

Mr. TAYLOR. Yes. I hesitate to express any opinion on that, sir. I shall be very glad to tell you anything I know, but I do not want to profess to know something that I do not know.

Senator SIMMONS. Yes; I understand.

Senator LENROOT. I presume, Senator Simmons, that that would depend upon the policy of Congress itself with reference to the continuation of Government shipbuilding.

Senator SIMMONS. So do I, but I thought, so far as the policy of the Shipping Board and of the Fleet Corporation is concerned, the concrete-ship construction at this time is, in a measure, experimental.

Senator LENROOT. I understand.

Senator SIMMONS (continuing). And that the future of concrete construction depends upon the results of the experiments that it is now proposed to make at Wilmington, and probably some on the Pacific coast. I do not know, but my understanding was that they were going to build some of those concrete ships on the Pacific coast—as well as on the Atlantic coast. So that at the present time we can not tell what is the future of concrete-ship construction in this country.

Now, with reference to this other plant at Wilmington: That is a Government-owned plant, as I understand; the Government has simply employed some company, the Carolina Shipbuilding Co., I be-

lieve it is called, as its agent to construct these ships; it owns t property.

Mr. TAYLOR. That is true.

Senator SIMMONS. Now, do you happen to know anything abo the acquisition of that property? I am asking you if you know th the property which they have down there was turned over to the at a merely nominal figure, compared with its actual value. I ha been told that the property was worth about $100,000; it was turn over to the Government at the nominal figure of $17,000.

Mr. TAYLOR. I have been so informed, but I do not know the fac I did not go into that for the reason that I have looked upon th house-building work, not as a public improvement for a given loc ity at all; I have considered putting in houses only where the e gencies of war and production of ships made it absolutely necessa and unavoidable for us to do it.

Senator SIMMONS. Yes; but I want the committee to understan Mr. Taylor, if I can get it before them from your testimony, the e tent to which the city of Wilmington and its people have contribut in this matter.

Mr. TAYLOR. I should like to record that I believe it to be a fa that the citizens of Wilmington have cooperated most generous with the Government in the provision, not only of the site for t shipyard at a reasonable figure but also the public utilities, and oth matters in conjunction with the establishment of a shipyard at th point, and I believe that they have also furnished some quarter of million dollars' worth of housing, in relief of the housing shorta at the point in question, to help the Government build ships in t yard in question.

Senator SIMMONS. And that quarter of a million dollars has be expended in the construction of new houses, has it not?

Mr. TAYLOR. Yes; in the construction of new houses.

Senator SIMMONS. And those houses are located in proximity these plants?

Mr. TAYLOR. Between the two yards, the concrete-ship yard a the steel-ship yard.

Senator SIMMONS. Outside of the city proper?

Mr. TAYLOR. I am not sure whether they are outside of the c lines; I am informed by my assistant that they are just outside the city line.

Senator SIMMONS. Outside of the city line; and those hou would not have been built there, probably, for uses connected wi the commerce of the city, but only for these plants?

Mr. TAYLOR. I do not know; I have not been down there.

Senator SIMMONS. You have not been down there?

Mr. TAYLOR. No, sir. But I would like to say, in connection wi all our housing projects on the Atlantic, Pacific, and Great Lal coasts, that I have been at every project personally excepting Ne burgh, Port Jefferson, Long Island, and Jacksonville, Fla.

Senator SIMMONS. Well, Mr. Taylor, is it not a fact that both those plants at Wilmington have been built within the original es mate—a condition that does not apply to many, if any, of the oth plants constructed by the Government?

Mr. TAYLOR. I do not know, Senator.

Senator SIMMONS. Mr. Chairman, I would like to make this special request, because I can not be with the committee very long, for reasons which you all know: Would you permit me, if Mr. Taylor will kindly consent to it, to put one or two gentlemen from Wilmington on the stand at this time, so that they may make a statement about these matters that I want to get before the committee?

The CHAIRMAN. I think that will be all right; but please make it as condensed as you can, Senator.

Senator LENROOT. I suggest that after that we adjourn, Mr. Chairman.

The CHAIRMAN. Yes, if it is agreeable to the committee.

Mr. TAYLOR. Will that finish the hearing, Mr. Chairman?

Senator LENROOT. I would like to go into the matter of the relative cost of different projects, but I do not know whether we can do it at this session of the committee.

The CHAIRMAN. Could we meet this afternoon?

Senator LENROOT. I do not think it will take me over 15 minutes.

Mr. TAYLOR. If we can finish to-day, I shall be delighted.

Senator SIMMONS. I am only asking this indulgence on the part of the committee, because my duties in connection with the revenue bill are so exacting that I can only get away during the lunch hour.

The CHAIRMAN. Very well; you may proceed, Senator Simmons.

## STATEMENT OF HON. WALKER TAYLOR, COLLECTOR OF CUSTOMS, WILMINGTON, N. C.

Senator SIMMONS. You are a citizen of Wilmington, I believe, Col. Taylor?

Col. TAYLOR. Yes, sir.

Senator SIMMONS. You are collector of customs there, are you?

Col. TAYLOR. Yes, sir.

Senator SIMMONS. You have lived there all your life?

Col. TAYLOR. Yes, sir.

Senator SIMMONS. Col. Taylor, I want you to tell the committee the facts with reference to the site for the construction of these fabricated ships. What was the value of the property that the Government acquired there?

Col. TAYLOR. The private ownership of a piece of property which is adjoining this is held at $107,000, which we contemplated turning over to the Government. But they selected this site to put the yard on as being the better site of the two: and I consider that site worth about the same price as the other—$107,000. We turned it over to the Government for about $17,000.

Senator LENROOT. What was the acreage?

Col. TAYLOR. About 100 acres.

The CHAIRMAN. That includes the shipyard site where the ways are, the water front, and the housing area, too, does it?

Col. TAYLOR. Yes, sir.

Senator SIMMONS. That was the yard for the fabricated ships, was it?

Col. TAYLOR. Yes; for the fabricated ships.

Senator SIMMONS. That is known as the Carolina Shipbuilding Co., is it?

Col. TAYLOR. Yes, sir; the Carolina Shipbuilding Co.

Senator SIMMONS. Now, with reference to the other shipyar what number of acres has it acquired?

Col. TAYLOR. They have about 100 acres and about 1 mile o water front.

Senator SIMMONS. They have about 100 acres, and the Goverr ment owns the title to that?

Col. TAYLOR. Yes, sir.

Senator SIMMONS. What did the Government pay for it?

Col. TAYLOR. We gave that to the Government.

Senator SIMMONS. You gave that to the Government?

Col. TAYLOR. Yes, sir.

Senator SIMMONS. What is that worth?

Col. TAYLOR. About the same price as the other.

Senator SIMMONS. About $100,000? Where do these two yar get their power?

Col. TAYLOR. Our local traction company—the Tidewater Pow Co.—furnishes it.

Senator SIMMONS. Do you know whether it has been necessary f the Tidewater Power Co. to enlarge its plant in order to suppl this power?

Col. TAYLOR. Yes, sir; I am a director in that company, and w have spent about $450,000 in double-tracking up to this Carolir shipyard and purchasing additional equipment to furnish them pow and gas.

Senator SIMMONS. What is your price for the power you furnis them, as compared with the——

Col. TAYLOR (interposing). We let the Government put its ow price on the power.

Senator SIMMONS. To put its own price on the power?

Col. TAYLOR. Yes, sir.

Senator SIMMONS. What other work has the city of Wilmingt done out there outside of the construction of houses at its ow expense?

Col. TAYLOR. The county has built a concrete road, at a cost about $20,000 into this shipyard. The city has spent about $50,0 on vitrified brick streets into the other shipyard; it has enlarged i water plant to the extent of about $60,000 to furnish that facilit and it has voted a school bond issue of $250,000 to furnish scho facilities to the children of these shipyard workers. It has spe about $30,000 to eradicate the mosquitoes in that vicinity which wou pester the shipbuilders.

Senator SIMMONS. What was the actual extent of the housing pr gram that the citizens of the town have supplied the funds for?

Col. TAYLOR. We raised and subscribed ourselves $250,000, a paid it in in actual cash, and built these houses outside of the ci limits, contiguous to this Carolina shipyard. The houses are b tween the two shipyards, but a little nearer the steel shipyard.

Senator LENROOT. How many houses are there?

Col. TAYLOR. We have built 46. We started to build 60, but t shipyard asked us to build a little better class of houses, and so we r duced the number to 46.

Senator SIMMONS. How far are those houses out from the city?

Col. TAYLOR. They are about half a mile.

Senator SIMMONS. They would have, then, very little rental value, except in connection with these shipyards?

Col. TAYLOR. Very little rental value; the private citizens of the town have built about 50 more houses.

Senator SIMMONS. To supply this demand?

Col. TAYLOR. To supply this demand.

Senator SIMMONS. And your city is a city of about 30,000 people?

Col. TAYLOR. About 30,000.

Senator SIMMONS. That is all.

Senator LENROOT. What was the population of the city of Wilmington before these activities?

Col. TAYLOR. About the same; maybe 28,000.

Senator LENROOT. How much of the population has come in just outside of the city, near these shipyards?

Col. TAYLOR. Well, they said they could supply you the number of employees required. I do not know.

Senator LENROOT. That would not give the figures I asked for, because presumably a large percentage of those employees live in the city. What I was trying to get at was the increase of population as a result of these activities.

Col. TAYLOR. About 2,500 or 3,000.

Senator LENROOT. Of course, the presence of these yards adds to the prosperity of Wilmington, and it was expected that they would at least be of a corresponding benefit to the city.

Col. TAYLOR. The Shipping Board officials assured us, when we got out the program as I have outlined it, that they would take care of the situation from then on, in the matter of housing, to the extent of $500,000.

Senator LENROOT. If the yards are maintained, you would be glad to have them, even if the housing project is not carried on by the Government, would you not?

Col. TAYLOR. We would be in a terrible fix if they do not stay there.

Senator LENROOT. That is all.

**STATEMENT OF MR. A. MERRITT TAYLOR, MANAGER DIVISION OF PASSENGER TRANSPORTATION AND HOUSING, UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION—Resumed.**

Mr. TAYLOR. May I ask, for the record, who made the commitment for $500,000, to be spent for housing at Wilmington?

Col. TAYLOR. I do not know that they made a commitment; but when we went before Mr. Hurley and Mr. Piez, they said, "If you do these things, we will follow it; we will carry the thing through and let you stop there." And then a committee came down from your board, as I understand, and recommended a project that would cost $500,000.

Mr. TAYLOR. I did recommend that that should be done; but I want to make it clear that I did not make any promise in that connection.

Col. TAYLOR. No; I also want to make it clear that you did not.

Senator SIMMONS. Mr. Taylor, do you think, in the interest of the Government, that that plant should be enlarged?

Mr. TAYLOR. I am not competent to speak on that subject; I a not a shipbuilder.

Senator SIMMONS. Do you think that could be efficiently operat unless there is more labor than they have there now?

Mr. TAYLOR. It can not be operated as efficiently as it should operated without more labor.

Senator SIMMONS. It can not be operated as efficiently witho more labor; and in order to get more labor you must have addition housing facilities?

Mr. TAYLOR. That is true.

Senator SIMMONS. You have not now the housing facilities nec sary for the number of men that you could economically work wi there?

Mr. TAYLOR. That statement is correct. And the great inco venience in traveling between the city and the yard is also a fact which deters workmen from going to that yard, if they have travel to it over the only facilities which are available to them.

Senator LENROOT. In that connection, they have four ships up the ways, have they?

Mr. TAYLOR. Yes, sir; just started.

Senator LENROOT. Instead of building four at one time, they cou go on with two and get along very well, could they not? I do n mean to abandon the four, of course.

Mr. TAYLOR. I do not think a shipyard can build two ships wit out having any other work on hand—economically. I am not suf ciently acquainted with the economics of the case, however, to s definitely, and I do not want to give an opinion on something whe my opinion would be worthless.

Senator SIMMONS. If the city proper furnishes sufficient housir capacity, you think it would be much more economical if the Go ernment had its housing conveniences nearer the plant?

Mr. TAYLOR. I think it would increase the economy in ship pr duction; it would increase the value of the Government's investme already made at the plant in question; and if the Government mak that an economical plant, which turns out ships satisfactorily, will have a much better sale value than it would otherwise have, a the Government will thus recoup a larger amount of the investme which it has made in that yard.

Senator SIMMONS. That covers it. What do you think of Wi mington as a point for the construction of ships?

Mr. TAYLOR. I am not competent to express an opinion on th subject.

Senator SIMMONS. Can you give the committee an opinion as t the relative cost of constructing ships there and elsewhere?

Mr. TAYLOR. No; I do not know anything about the cost of ship I am sorry to say.

Senator SIMMONS. That is all.

The CHAIRMAN. Mr. Taylor, could you give the committee thi information? You have a steel shipyard there now, with fou ways, and a concrete shipyard with two ways, and they are goin on with the construction. They have, of course, a number of me employed; they have these houses that Col. Taylor spoke of a occupied, I suppose. Is that correct, Col. Taylor, that those house that you have had built are occupied?

Col. TAYLOR. Yes.

The CHAIRMAN. The question in my mind is, what is the need for more men at that point to proceed with the normal ship production—not on the basis that we were going on during the war, where we had to hurry up the building of the ships, do extra work, have extra hours, etc., without regard to economic conditions; but what is the need now for additional men to go on, in the normal way, with the proper construction of ships there?

Mr. TAYLOR. The excessive labor turnover there, and insufficiency of labor at that point—excessive labor turnover means that you are all the time taking in new men and getting only those who are partially trained, thus due to poor living conditions, fully skilled labor can not be imported to that point and maintained there for any length of time.

The CHAIRMAN. Have you the figures as to the number of men they have in that yard?

Mr. TAYLOR. I will look that up [examining papers].

The CHAIRMAN. While you are looking that up, I will ask what are the transportation facilities out there from the city?

Mr. TAYLOR. There is an electric railway, which we have been financing. The reinforcement and enlargement of, and the furnishing of additional track facilities and additional power facilities; but at best it is not an attractive method of approach for working men.

The CHAIRMAN. Will that railroad pass through this location where the houses are to be built?

Mr. TAYLOR. Yes; right through it.

Gentlemen, I want to leave you with as complete an understanding as it is possible to give; and if you can devote five minutes to me, I assure you I will appreciate it.

I will now show you this chart.

The CHAIRMAN. You will have to explain somewhat in detail, because we can not put the chart in the printed record.

Mr. TAYLOR [exhibiting chart]. I show you here a chart showing the transportation problems which we have solved; the nature of them and the location of them.

In the center of chart [indicating] you will find certain legends, the first one being street railway extensions; the second one, street railway track changes or loops.

And so on, including steamboats provided, special train service provided; power plant enlargements, etc.

Then, leading from each of these legends to points on the Pacific coast are lines in cases where that legend applies to any given point on the coast.

Hence, by following lines leading from each legend to various points on the Pacific coast, on the Great Lakes, on the Atlantic, and on the Gulf coast, you may find out how many problems of the character designated in that legend were solved; where they were located, and for the benefit of what shipyard the additional provisions were made.

To illustrate, street railway extensions were made as indicated by three lines running from that legend [indicating] to the Pacific coast; one running to Tacoma, Wash.; one running to Oakland, Cal.;

and one running to San Diego, Cal. We made street railway ext sions at all of those points. We also made two on the Gulf coast.

The CHAIRMAN. To what points?

Mr. TAYLOR. At or near Mobile, Ala. We made more than I able to count by the lines. Here on the Atlantic coast, at vari points, approximately 10 points.

As to special steam trains, we put a number of special ste trains in service at Seattle, Wash.; one at Clyde, Cal., and a gr many at various points on the Atlantic coast, as well as several the Gulf coast.

By looking up and down the chart on both sides of these legen and by counting the lines right across the map, you get exactly t number of street railway problems that my division has handl and solved since the 3d day of April, whereby over 125,000 ad tional shipyard workers were gotten to the shipyard from existi but inaccessible housing facilities, and construction of additio housing for them was thus avoided. Now, that is one thing th I want to drive home and have fully understood.

The CHAIRMAN. Most of those activities, so far as the Atlan coast is concerned, are up there [indicating], north of Maryland, a they not?

Mr. TAYLOR. Yes, sir; the greatest congestion on the Atlan coast was around the great manufacturing districts, which were e gaged in the manufacture of munitions and other war supplies, a it was there that we had the greatest difficulty.

Now, in the preliminary work on housing there are one hundr and eighty-odd steps that have to be taken as a condition precede to starting work on a housing project: and to show you the thoroug ness with which that has been handled I exhibit our progress cha of progress stages [exhibiting chart].

Upon this chart [indicating] you will find 185 vertical colum at the top of each one separate step is indicated, which has to taken in establishing the usual housing project.

Opposite the horizontal lines the name of each shipyard benefited indicated. Those squares [indicating] are formed by the inters tion of the aforesaid vertical lines and the aforesaid horizontal lin

In the beginning, when this chart was just gotten out, each those squares [indicating] was vacant. As each step required w taken the appropriate square opposite the shipyard in question, a beneath the legend indicating the nature of that step, was filled i

That gives you a very fair idea of the large amount of detail work involved in going systematically forward with this gre development, and the great necessity of care in seeing that no ste are overlooked whereby the Government interests will be prejudice

There is one other question that I would like to bring up of n own volition; it is this: I like to bring up the questions about whi we are likely to be criticized, because none of us care about the other they are fully understood.

In the case of the Chester district, where there are located t Westinghouse Machine Co.'s plants, that are building the turbin to drive the ships; the Sun shipbuilding plant, the Chester shi building plant, the Eddystone munitions plant, the Midvale Steel Ordnance Co.'s rifle plant, the Baldwin Locomotive Works, a numerous other war industries the congestion became so terrifyi

and the waste of time in ship production became so serious, and the need for turbines to drive the ships became so great, that the housing facilities and transportation facilities available at Chester were wholly inadequate to serve the military requirements of the Government.

The capacity of the railroad lines leading from Philadelphia to Chester are limited, as to the Pennsylvania by a two-track tunnel on the Pennsylvania; and the congestion on the B. & O. and we were in desperate straits to get the labor into that district from Philadelphia. Our only way of doing it was to double-track the electric road on the Chester pike, which runs from Darby to Chester, and which is owned by one of the electric combinations of the country, the American Railways Co., it was called. I believe they have changed their name; I do not know its name now. Perhaps it is the American National Properties Co.

We went to that company and said, "We want you to double-track and adequately equip that railroad right away, and we will lend you the money to do it, if you will repay the loan to the Government." They said that they would be very glad to enter into negotiations, but that first they would have to get the right of way from the turnpike.

I got the officials of the turnpike company together and they would not agree on a reasonable basis to give the right of way for the double-tracking of that road. Neither would the borough give their consent for a franchise to double the tracking down there; and no railway company could afford to repay the Government for the construction of a second track for which there was no franchise, and which might have to be taken up after the war, if any borough required it.

Therefore, we simply went ahead, requisitioned the right to build that railway down that turnpike, and we built it with Government money without any agreement whatever on the part of the railway company.

We are therefore in the position of having invested at the point in question, with full knowledge of the necessities and the results, etc., over twelve hundred thousand dollars in railway tracks, cars, etc., with a provision only that the railway company shall buy the cars at the appraised value after the war, not less than 75 per cent of cost; and we had to take the gamble on the tracks.

The company is now endeavoring to get the borough to give reasonable franchises which will enable the maintenance of that track as built by the Fleet Corporation; and we have assurances from the railway company that, if the boroughs grant the necessary ordinances free from onerous restrictions they will take over the railway track at 75 per cent of what it cost the Government to put it there, and pay the bill in equal annual installments, with 5 per cent interest.

The CHAIRMAN. The track runs from where?

Mr. TAYLOR. From Darby, which is in the outskirts of Philadelphia, and which is a terminus of the city system's double tracks to Chester.

The CHAIRMAN. What is the distance?

Mr. TAYLOR. A distance of 6 miles and a fraction. The carrying capacity of that single track laid down there was limited to the passage of two cars running as a doubleheader every 15 minutes in

one direction. That is, only eight cars per hour in one directio with a capacity of 100 passengers each, or 800 passengers an hour i one direction.

By laying the second track we increased the track capacity suff ciently to accommodate 18,000 passengers per hour in one directio because it enabled the operation of two-car trains every 40 second if needed, which is equivalent to 200 passengers every 40 seconds i one direction. Have I made that clear?

Senator LENROOT. Yes; that is perfectly clear.

Mr. TAYLOR. I do not think there is anything else I wish to subm other than the photographs which I have brought of all the pro jects—unless you gentlemen have any items you may wish to ca for in addition thereto.

The CHAIRMAN. Who operates that line, did you say—who actuall operates it? The Government put the road in there and bought th cars; now, who operates that road?

Mr. TAYLOR. I think their underlying company is called th Southern Pennsylvania Traction Co.

The CHAIRMAN. Now, do they get all the fares—all the proceed of the operation?

Mr. TAYLOR. We have made a temporary agreement for the opera tion for a period of six months only in order to see what the result o that operation is before making any agreement for a longer term.

The CHAIRMAN. What are the terms of that agreement?

Mr. COOKE. They agreed to operate and to pay us a rental equiva lent to 5 per cent per annum of the cost of the line.

The CHAIRMAN. They practically leased the line from you for period of six months?

Mr. TAYLOR. Yes; leased for a period of six months.

The CHAIRMAN. And they get all the proceeds from the fares, etc.

Mr. TAYLOR. Yes, sir; and we have as security for repayment t us of the amount due on the cars—we have retained title to the cars

The CHAIRMAN. Yes; their lease covers both the track and the cars does it not?

Mr. TAYLOR. The cars are under a separate agreement, because tha is an out-and-out sale of the cars to them; we did not want to mak that a temporary agreement.

The CHAIRMAN. I started to ask you something about the Pensa cola, Fla., situation. I was informed at one time down there tha they needed houses very much. I see that was contemplated at one time, but the project was abandoned. They have at Pensacola a contract for 10 steel ships of 9,000 tons each, and they are building those ships there, I understand. Do you know what situation finally developed that caused you to abandon the housing proposition there?

Mr. TAYLOR. Yes, sir. The Pensacola Shipbuilding Co. obtained their contract from the Fleet Corporation upon representations that they would take care of the housing themselves at the point in question. Later on they found that they could not do it. Money became more stringent, and they found it impossible to build the house which they needed; but in view of the fact that they had committed themselves in taking the contracts to provide their own housing, we thought the best we could do would be to lend them the money without write off in order to relieve their situation. We did agree to lend them $660,000, including $60,000 for the purchase of land, the

balance being for the purchase of houses, they to guarantee the return of the full amount in annual installments. They later notified us that they could not see their way clear to comply, and that ended the proposition.

The CHAIRMAN. Do you know whether there is any need for housing there?

Mr. TAYLOR. Yes; I know they did need the houses when we had a careful investigation made.

Gentlemen, have you the time to run over these pictures [indicating], in order to get an idea of the character of the work we have been doing and what we have to show for it?

I would like to read this into the record in response to a question the chairman asked a few moments ago:

The workmen employed in the Carolina Shipbuilding yard on October 24 numbered 700; in the office, 176; total, 876. On November 25, 1918, the same year, there were 1,700. On December 25 estimated requirement, 2,500. On February 1, 1919, estimated requirement, 4,000.

I think that answers fully your question, Mr. Chairman.

The CHAIRMAN. Yes.

Mr. Cowan, do you desire to add anything to the statement that Col. Taylor made with regard to Wilmington?

## STATEMENT OF MR. JAMES H. COWAN, SECRETARY CHAMBER OF COMMERCE, WILMINGTON, N. C.

Mr. COWAN. No; I simply told Senator Simmons, in the absence of those figures, that I could give some of the figures by reason of the fact that I have had contact with the yards at Wilmington, and I think the figures for both yards were something like 4,500 men to be needed. But, of course, that means many more people in the houses, because the character of men they desire to procure in order to obtain efficiency, as I understand it, would not come without bringing their families; and, of course, that would mean many more people that they would have to take care of in order to get the class of people that they would want; and any other class would lessen the efficiency and the dispatch of the work considerably.

Senator LENROOT. How many men are employed in the steel-ship yard now?

Mr. COWAN. I should say at present there are 900 men employed in the Carolina yard, the steel yard. But, you see, that does not show you the value of those yards; I understood from Mr. Piez yesterday that this was probably the only yard that would come within the estimate of the cost appropriation.

Senator LENROOT. How many men are employed in the other yard?

Mr. COWAN. I should say 600 or 700.

Senator LENROOT. That is, 1,600 or 1,700 all told?

Mr. COWAN. Yes, sir; but the Carolina steel yard has reached a point where they must have many more workmen, especially riveters.

Senator LENROOT. That is, with four ships on the ways.

Mr. COWAN. Yes; even with two ships they will have to increase the number of men. And the men want to bring their wives and families; and living conditions have reached a stage where they can

not find conveniences for their families; and so naturally they wi not stay; and, of course, that creates a great increase in the pe centage of turnover.

Otherwise, I think the conditions there are admirable. That only my personal opinion, of course; I am not an expert, but I hav come in contact with it.

The CHAIRMAN. Do you mean that their need for men from now c will be greater than it has been heretofore?

Mr. COWAN. Yes, sir; from a layman's standpoint, who has ha some contact with shipyards, I should say that the need for men wi be much greater hereafter, as they have just reached the acute buil ing stage.

Senator LENROOT. Well, have they just completed the yard?

Mr. COWAN. They had completed the yard before a keel was lai

Senator LENROOT. Yes; but the number of men used in buildin the yard is not the same as the number necessary for building tl ships.

Mr. COWAN. But the number of men used for building the yard small as compared with the number used in building the ships.

Senator LENROOT. That was not true at Hog Island. [Laughter.

Mr. COWAN. But the Wilmington yard is what is called a perfe yard. There are over 100 acres of land in their tract, which, as Co Taylor told you, was given to the Government for $17,500; I mea it was given to the Government in fee simple; the Government own the land now, which was valued in its crude state, at over $100,00 It is, of course, worth a great deal more now; it has the advantag of the mosquitoes having been eradicated; it has an approach of $20,000 concrete road into that plant, without which the plant woul be mere junk. This yard is on a fine elevation and the ground firm. To use but two ways, as suggested, would cost the Govern ment a big sum, in loss of costly ways already constructed, beside less returns in number of ships and expense of same. Such abandon ment would also lessen ultimate value of plant at time of sale b the Government. Therefore, governmental economy is to use a ways.

The CHAIRMAN. How much water front is there?

Mr. COWAN. I could not say exactly; it has an extensive wate front; it has water front enough for 10 or more ways.

The CHAIRMAN. What depth of water is there?

Mr. COWAN. It will run from 28 to 30 feet right in front of th property to the channel.

The CHAIRMAN. Are they building all four of those ships at th same time?

Mr. COWAN. Yes, sir; four keels are laid. The yard is outside o the city.

The concrete shipyard is in the city proper. That was 100 acre also, which was made an absolute present by the city. Now, th double track of road that runs into these plants will be very muc used. I think the people of Wilmington gave up $450,000, or in tha neighborhood. The Emergency Fleet Corporation advanced tha money, but they have security for it, and that will be paid back t them, of course, by the company, made up largely of Wilmingto people.

The CHAIRMAN. We are very much obliged to you for your statement, Mr. Cowan.

Mr. COWAN. May I say, due to the modesty of Col. Taylor, that in order to make the men contented in Wilmington, and to reduce the turnover of workmen, he has donated a completely furnished club building at a cost of $30,000 for the shipbuilders. I say that, because Col. Taylor's modesty prevented his mentioning it.

Mr. TAYLOR. Mr. Chairman, would it be in order for me to suggest that, in order to clarify the situation and to save the time of the committee, and to enable the Fleet Corporation to be sure that in this matter it is acting in harmony with the views of the committee, that I address to you, as chairman of the committee, a letter stating, in very brief detail, the facts about Wilmington and why we think the appropriation should be made; the same as to Savannah, Ga.; and also a letter outlining a plan of procedure in disposing of the houses which we have built by sale, first, to the shipyards, if practicable; otherwise, to the public.

It is our very earnest desire to act in harmony with the policy of Congress, as interpreted by your committee, and not to do anything unwise; and if it would not be unusual or improper for your committee to give us, in a most informal way, an expression of your views in relation to these matters we would be glad to have it, we would value it very highly, and we would be guided by it.

The CHAIRMAN. I think that would bring the question very squarely before the committee, and I should be very glad to lay such a letter before the committee.

Mr. TAYLOR. Would that be proper, Mr. Chairman?

The CHAIRMAN. Yes, sir; I think so. I would submit it for such action as the committee might decide to take on it. I think that would be a very good course to pursue; it would present the matter in concrete shape, so that you could have our views about it.

(The letter referred to was subsequently submitted by Mr. Taylor, and is here printed in full, as follows:)

UNITED STATES SHIPPING BOARD,
EMERGENCY FLEET CORPORATION,
*Philadelphia, Pa., January 16, 1919.*

Hon. DUNCAN U. FLETCHER,
*Chairman Committee on Commerce,*
*United States Senate, Washington, D. C.*

MY DEAR SENATOR FLETCHER: I requested and was granted permission to obtain from the Committee on Commerce an informal expression of its judgment with relation to three important problems for the guidance of the United States Shipping Board Emergency Fleet Corporation, and I shall be greatly obliged if you will present the following data to the committee and advise me as to the sentiment of the committee in each instance. I can assure you that such sentiment will be regarded by the Fleet Corporation.

1. In re Wilmington (N. C.) housing project:

On November 5, 1918, I recommended and Mr. Charles Piez approved an appropriation of $500,000 for the construction of inexpensive frame dwelling houses for shipyard workers on land already owned by the Government adjacent to the Government-owned shipyard, which is operated by the Carolina Shipbuilding Co., under an agency contract. This company had then undertaken the construction of 12 cargo ships, having 115,200 dead-weight tonnage, at an estimated cost of $20,587,200.

A special investigation made by Mr. J. Willison Smith, assistant manager of the division of passenger transportation and housing, and E. A. Bales, Esq., assistant counsel, together with the Government agents on the ground, dis-

closed the fact that the housing facilities in Wilmington, N. C., are wholl inadequate for the service of this shipyard; that during December, 1918, ther were 1,123 men employed in the yard, and that 2,377 additional men woul be required by March 1, 1919, or a total of 3,500 men, to operate the yard : full capacity of four ways.

They found that there were no suitable housing accommodations availabl for these 2,377 additional men either in or near the city of Wilmington.

This Government-owned yard is located approximately 2 miles downstrea from the city limits of Wilmington, on the same side of the Cape Fear Rive but about 3.5 miles from the center of the city, and shipyard workers wh travel between Wilmington and this yard are dependent upon an electri railway line (operated by the Tidewater Power Co.) which has not adequat capacity to serve their requirements, even if adequate housing facilities wer available to such workers in said city, and hence the situation would b materially relieved by constructing the houses in question adjacent to th shipyard on land already owned by the Government.

The Government agents who are operating this yard, and the representative of this division who have investigated the subject, are convinced that th interests of the Government will be materially advanced by proceeding wit the construction of this housing project, in that the Government investment i this yard will approximate, exclusive of hull construction, $2,000,000, and th ultimate value of this Government investment necessarily depends largely upo whether ships can be built economically in this yard as a commercial prop sition, and consequently whether the yard can be sold as a profitable goin concern or whether it must be scrapped. The same arguments will apply wit equal force should the Government elect to continue the operation of the yar for its own account.

Under present conditions, owing to lack of housing facilities, the require number of skilled workmen can not be secured for the operation of the yar at full capacity. The result is a large and wasteful labor turnover and th resultant increase in cost of ship production which the Government must pa under its agency contract.

I am firmly convinced that the best interests of the Government will b served by proceeding with the construction of this housing project, and tha the ultimate loss on the investment thus made will be completely and ver generously offset by making the shipyard more efficient and thus more valuabl for sale, and by decreasing the cost to the Government of ship constructio therein.

If the committee informally concurs, we shall proceed with the constructio of this housing project; if the committee dissents we shall abandon it.

2. In re Savannah (Ga.) housing project:

Shortly after the establishment of this division application was made b the Terry Shipbuilding Corporation for construction of a housing projec adjacent to that company's yard, which is located on the Savannah Rive and by road about 9 miles upstream from the city of Savannah.

A preliminary investigation showed the need of houses at this point an that no improvements to the transportation facilities were practicable whic would obviate this need. Therefore in June, 1918, I recommended, and Mr Charles Piez approved, the making of a loan of $750,000 in accordance with ou usual plan for such a housing project. However, as climatic conditions did no require the commencement of work at that particular time the necessity o starting on this project was not felt to be quie as urgent as elsewhere, an no final decision was reached for some months. In October I requested Messr Smith and Bayles to investigate housing conditions at Savannah, the condi tions of transportation from Savannah to the Terry Shipbuilding Corporatio yard, and the conditions of housing in the immediate vicinity of the yard Messrs. Smith and Bayles made such investigation and reported that in thei opinion additional housing facilities in close proximity to the yard were badl needed. The transportation facilities were reported by them to be unsati factory and inadequate. They reported that suitable land in immediate prox imity to the shipyard was available, which the shipbuilding corporation wa prepared to buy; that this land could be developed with an inexpensive typ of house; and that because of the contour of the ground, nature of the soi and the proximity of the site to the river a relatively minimum expenditur would be required for installation of streets, sewers, and other necessar utilities. They have reported the existence of industrial plants close to th

shipyard which would in all probability provide occupants for any houses so constructed should the shipyard have reason to shut down.

The following particular information was also procured for me as to transportation facilities:

This yard is served by the Savannah & Atlanta Railway; mileage, Savannah to Port Wentworth, 9.9 miles. The workmen's 12-trip rate is $1.32, or 11 cents per ride, 22 cents per round trip. The yard is also served by Port Wentworth extension of the Savannah Electric Co. This is a single-track line extending about 8 miles from the center of Savannah, with a terminal loop at Port Wentworth; the loop is about a half mile from the yard. Only a few employees do and can use this particular means of transportation. There are two fares between Savannah and Port Wentworth, at 5 cents each, making a round trip fare of 20 cents. Steamboats have also been operated between Savannah and Port Wentworth by the Savannah Connecting Steamship Co., which is controlled by the Savannah & Atlanta Railway Co. Round trip fare has been 22 cents. This is reported to be a very unsatisfactory method of transportation because of time required in making the trip and the infrequency of schedule.

Upon receipt of the report of Messrs. Smith and Bayles, and receipt of the foregoing particular information as to transportation facilities, I recommended that the amount of the proposed loan be reduced from $750,000 to $350,000, and, further, that the shipbuilding company be required to guarantee the absolute repayment of such amount of the loan as may represent the postwar appraisal of the property, and which in no event is to be less than 70 per cent of its cost, so that the Government could be assured of a return of at least 70 per cent of the loan.

The Terry Shipbuilding Co. was informed of the conditions under which a loan would be made. It accepted the same, agreeing to give the required guaranty. It further proceeded to secure and did secure at its own cost and expense the land required for the housing project. The shipbuilding company caused to be organized the necessary realty company, and deposited its stock with the Emergency Fleet Corporation; all necessary legal instruments were prepared, approved by counsel, and executed as required by the realty company and the shipbuilding company, as the case may be. Plans and specifications of houses were prepared and submitted for approval to this division, and generally, every step taken to advance the project as rapidly as possible, including the purchase of materials for construction. The proposed loan was duly approved by action of the board of trustees of the Emergency Fleet Corporation.

I take the liberty of quoting here from a letter received by Mr. J. Willison Smith from the Terry Shipbuilding Corporation under date of November 27, last, which very well summarizes their situation:

"We are now practically in shape to begin building, and have made a number of commitments for material, etc., and are still of the firm conviction that the necessity for houses is as great as ever for our economical operation of the yard. Although we have agreed to the reduction of the appropriation from $750,000 to $350,000 and have agreed that this corporation obligates itself on this advance under the usual terms and write offs.

"We might point out to you that after the original contract was awarded to us the Emergency Fleet officials decided to cut down the building program on the composite ships, and substitute therefor 10 all-steel oil tankers of 7,500 tons capacity. Upon being assured that we would be taken care of as far as housing was concerned we agreed to this substitution. Since the appropriation was agreed on by your departments, we have entered into the building of the dry dock and repair plant, based on the knowledge that we would have better housing conditions, and have made numerous commitments since receiving assurance of the appropriation.

"While we have made good progress with our shipbuilding program, it was done under very adverse conditions with a heavy labor turnover which is expensive to us and because of the fact that we have continually promised our men to better their housing conditions, we have been able to hold them. One of our five-room houses, for instance, have 9 of our employees living with one family, and we have one family in one five-room house feeding 21 of our employees."

I also take the liberty of quoting at length a report on the necessity for housing at the Terry Shipbuilding Corporation plant received by me under date of January 16, signed by Chester W. Cuthell, Esq., general counsel, and Daniel H. Cox, manager of division of steel ship construction:

"At you request we submit the following information as a result of a persona inspection made of the above plant on January 7, 1919:

"The Terry Shipbuilding Corporation's plant is situated about 8 miles fro the city of Savannah, and is accesible only by inadequate steam service, trolle service, and steamboat service.

"Between this plant and the city there is the shipbuilding plant of the Fou dation Co., which employs a large number of men, and which, by reason of it nearness to the city, is more attractive to labor than the Terry plant.

"The management of the Terry Shipbuilding Corporation has recently bee changed, and the present management appears extremely efficient, and is con vinced of the necessity for a certain amount of housing in order that they ma secure a nucleus of permanent employees of a reliable character, so that th shipbuilding may be carried out expeditiously and properly.

"In our opinion it is directly to the interest of the Emergency Fleet Corpora tion to provide for the additional housing contemplated, amounting to an invest ment of approximately $350,000, under favorable terms for recouping the Flee Corporation for its investment, inasmuch as this housing will, in our opinion result in the vessels being built more quickly and by reason of the better type o men, the vessels themselves will be, when completed, of better quality.

"We, accordingly, recommend strongly that this housing project be put int effect."

3. In re disposition of Government investments in housing projects establishe under the supervision of the United States Shipping Board Emergency Flee Corporation.

Before severing my connection with this corporation, I wish to record m emphatic opposition to perpetuation of Government ownership or control o dwellings built during the war as an emergency measure to expedite ship con struction, for the following reasons:

(*a*) The establishment and operation of villages in certain localities for th accommodation of certain industries and individuals directly benefited thereb would constitute discrimination against industries and individuals located else where throughout the United States where housing facilities must be estab lished, financed, and operated or sold on a commercial basis.

(*b*) Government ownership, operation, or control of workingmen's home would open the way to a wasteful political paternalistic policy respecting th occupants thereof and the industries benefited thereby and invite practices i the fixation of rentals, establishment of collateral welfare and recreation activities, and in the selection of tenants which could well be utilized to advan political ambitions and saddle the Government with excessive expense whic would constitute unjustifiable discrimination in favor of certain localitie industries, and individuals.

(*c*) The United States Shipping Board Emergency Fleet Corporation own outright, as I have stated in my testimony, certain housing developments whic it has built at or near Government-owned shipyards. With relation to thes projects, I believe the policy of the corporation should be to promptly and car fully determine through proper agencies the reasonable sale value of the house and any vacant land embodied therein, and to sell such houses and such lan preferably to shipyard workers, otherwise to the public, for cash or for small payment in cash, balance to be secured by purchase-money mortgage pay able in annual or other installments, at a reasonable rate of interest, in 10 year or less. This policy has been adopted with relation to each Government-owne project, and the execution thereof has been delegated by the Fleet Corporatio to Admiral Bowles, who has had supervision of the Government-owned yard and who supervised the construction of these houses.

In financing the permanent housing developments required for the service o privately owned shipyards, this corporation has generally required the shi building company to provide the land for its housing project without cost t the Government, and has advanced the cost of buildings and improvement taking as security for such advances a first mortgage on the project which b its terms provides for a write off or discount thereon representing the exces war cost not exceeding 30 per cent, to be determined by appraisal.

As I have clearly and emphatically pointed out to your committee in my te t mony given before you, the excess war cost of these projects has greatly ex ceeded 30 per cent, and it is entirely probable, as I have stated, that the averag value of these projects, when careful appraisal is made thereof, may be foun to be around 60 per cent of the amount invested by the Government therein.

Therefore, the shipbuilding company would, of course, decline to accept the obligation to repay to the Government 70 per cent of its investment, and as a result of such declination forfeit the land purchased by it to the Government, and turn over the ownership of the entire project to the Fleet Corporation, and the Fleet Corporation would thus be required to either manage or sell such projects at retail or otherwise. This course of procedure should be avoided as far as practicable.

I therefore suggest that the normal value of each such project be carefully determined by the Fleet Corporation through such agencies as it may select; that it be then offered at a fair valuation, as so determined, to the shipbuilding company for whose service it was established, and upon such terms of gradual payment of principal with reasonable interest as may appear to adequately protect the interests of the Government. This could well be accomplished by allowing an additional write off on the mortgage already held by the Fleet Corporation and by the payment of a specified amount of cash as an earnest by the shipbuilding company to carry out its undertaking in the premises, or by securing from certain of the financially sound shipyard companies their guarantee to repay the purchase price in installments in lieu of a substantial cash payment at the time the agreement is consummated.

In certain instances, owing to special conditions regarding ship contracts, shipbuilding companies have agreed to hold the Government harmless from any loss exceeding a certain percentage (in no such instance less than 30 per cent) of the Government's investment. Of course, in such instances the agreement should be adhered to.

In cases where the present or prospective financial standing of the shipbuilding company is such as to preclude the possibility of its repaying to the Fleet Corporation the reasonable value of the project as found by appraisal, I suggest that the Fleet Corporation should promptly arrange to take over title to such projects in satisfaction of the mortgage which it holds thereon representing the advances which it has made, and then proceed to sell such projects as hereinabove outlined respecting projects already owned by the Government.

With respect to all of the foregoing permanent projects, it is my personal opinion that the maximum write off on its investment in any particular project which the Government would be required to take would not exceed 50 per cent. It should be borne in mind, however, that many factors will determine the required write off in each particular project, of which a few may be here cited, such as, locality—with particular regard to proximity to other industries; material used in construction—that is, whether frame, stucco, or brick; size of houses, lots, areas, etc.; accessibility to stores, markets, schools, churches, etc. Also, it should be borne in mind that the physical depreciation is extensive in this type of construction, and with tenants recruited from shipyard workers.

The longer the Government postpones its decision to permanently dispose of its interest in these properties the greater will be the loss which it must inevitably sustain. I feel therefore that if your committee are not averse to intrusting this corporation with this responsibility, considerable latitude should be given it to exercise its own discretion, and to negotiate the disposition of the Government's interest in each particular project according to local conditions and as a business proposition, for the best interests of the Government. It would be unfortunate to determine in advance a fixed maximum write off for the reason that the various shipbuilders in such case would be inclined to assume that the Congress of the United States had granted such maximum write off in all cases alike, and the chance of negotiating in the interest of the Government would be virtually nil.

With respect to the convertible houses at St. Helena, Md., which were built to be occupied primarily as dormitories and so designed as to be convertible into individual homes, and with respect to frame hotels, dormitories, or apartments, I recommend that these be sold at what is found by appraisal to be a fair valuation upon the best terms obtainable.

As I have stated in my testimony, such housing facilities were established as a temporary expedient to expedite ship production where a greater investment in permanent individual homes or apartments was not justified by the conditions prevailing in their locations.

Although no steps have been taken as yet by the Fleet Corporation to appraise or sell any housing projects other than those which are directly owned by this corporation, it is the desire of the Fleet Corporation to promptly establish a policy which will result in a prompt liquidation of the Government's in-

terests in all housing projects on an equitable basis to the end that the Gove ment may avoid the ownership and management of workingmen's homes as landlord of the occupants thereof.

The suggestions which I have made herein are the result of a conferen between the officials of this division and a conference I have had with M Charles Piez, director general, and he authorizes me to state that he fully co curs therein, and that the Fleet Corporation will be guided by the views your committee with relation to these suggestions as you may informal express them.

Yours, very truly,

A. M. TAYLOR,
*Manager of Division of Passenger Transportation and Housing.*

Approved.

CHARLES PIEZ,
*Director General.*

The CHAIRMAN. May I ask about the general plan? I presun that where you are building houses on land owned by the Gover ment, or for which the Government has a contract for purchase, tho houses are built by the Government and paid for out of funds at you disposal directly, without any arrangement with anybody else as how you are to be reimbursed, or as to what you are to do with it.

Mr. TAYLOR. That is correct.

The CHAIRMAN. Now, when you build houses on land not owne by the Government, either owned by the shipbuilding corporation by some separate corporation, and you have advanced money for th building of the houses, what arrangement have you for the return that money? What sort of contract have you in such instances?

Mr. TAYLOR. In such instances we have taken a first mortgage the houses and on the land, providing that the donor of the lan or the realty company owned by the shipbuilding company in whic the title to the land is vested may take over the houses after the wa at the appraised value thereof, and not less than 70 per cent of th cost. If they fail to do that they forfeit the land in cases where the have provided it at their own cost.

They will not be able to pay so much as 70 per cent in most case as I have already informed you. Therefore I think that they, hav ing invested the money in the land and having it at stake, can affor in most instances to give more than the public for those houses, pa ticularly in view of the fact that the possession of those house insures their being available at all times for the occupancy of shi yard workers. And if they put their shipyard workers in goo homes, such as these are, it will greatly lessen the labor turnover i their plant and bring a better class of labor to work in their plan with resulting efficiency in operation and decrease in cost of co struction.

Therefore the logical purchaser of these housing development where they are built for the service of a well-to-do and solvent shi yard, is the shipbuilding company; and in my opinion every effo should be made to sell them in bulk to the shipyard company befo offering them to the public. Failing to secure a satisfactory off from the shipbuilding company, I think we should endeavor to g the shipbuilding company to forfeit the land right away to th Government, take title to the properties without additional cos and place them in the hands of a proper agency for retail sale t individuals, accepting purchase-money mortgages with small cas payments down, because the average working man can not affor

to pay all cash or a sufficient amount to enable him to secure the purchase money elsewhere. In other words, the Government can work out this proposition much better by taking a small payment down and accepting purchase-money mortgages than by demanding that the working man shall pay all cash or a sufficient amount of cash to enable him to borrow from some other agency.

The CHAIRMAN. Do I understand that in most instances—or can you state the percentage of cases—you are advised that these companies, either the realty companies or the shipbuilding companies, are not able or willing to complete the purchase of the houses at a write off of 30 per cent?

Mr. TAYLOR. I do not think that many, if any, of them will give 70 per cent of the actual cost of the individual houses. As to the apartment houses, in the case of Newport News, for instance, I think they may be worth that amount or more.

Senator LENROOT. Did I understand that in the case of the Savannah yard the contractor obligated himself to pay 70 per cent?

Mr. TAYLOR. He did in that case.

Senator LENROOT. Are there many such cases?

Mr. TAYLOR. I shall have to think that over for a minute. At Chester the Chester Shipbuilding Co. obligated itself to return 75 per cent of the cost of the hotel. At Groton Iron Works the shipbuilding company agreed to repay 100 per cent and put under mortgage some 60 houses which they were building and which were nearing completion.

Senator LENROOT. Do you think these shipyards would be willing to pay anything like reasonable value for these houses, buying them in bulk, in advance of the Government's fixing any shipping policy for the future?

Mr. TAYLOR. I think it is entirely possible that such plants as the New York Shipbuilding Co. at Camden might be induced to buy the houses at as good a price, if not a greater price, than they could be retailed at. This is based on an informal conversation we had with Mr. Neeland, the president, who is very much interested in controling proper living conditions for his men.

The same comment might apply, I think, to the Sun shipbuilding plant in Chester and the Chester shipbuilding plant in Chester, which are permanent plants and where we have a very large investment.

Senator LENROOT. But they are really the contractors, anyway, you say?

Mr. TAYLOR. Not in Chester, sir, except as to the hotel.

I think the same comment might apply to one or more of the projects on the Great Lakes.

Senator LENROOT. We have only one housing proposition on the Great Lakes?

Mr. TAYLOR. No; three—Lorain, Wyandotte, and Manitowoc. Also at Bath, Me., where we have the Texas Shipbuilding Co.'s plant, a wealthy corporation, which needs the use of these houses, possibly, later on at Gloucester, if that plant works out in good shape; not at present in any event. And if certain other plants which are now weak are bought by strong people already in the shipbuilding business elsewhere I think such purchasers would incline to buy the houses and control them.

Senator LENROOT. It is not to be assumed, is it, Mr. Taylor, th all of the plants now in existence can go on permanently as shi building plants, assuming that Hog Island will continue as a Go ernment project at full capacity?

Mr. TAYLOR. I am not qualified to give you, from the technic or shipbuilding standpoint, an answer that would be valuable to yo

Senator LENROOT. To a considerable degree it is a mathematic calculation, is it not, as to when we would catch up with our shortage

Mr. TAYLOR. You could not run all the shipbuilding plants no operating in the United States for an indefinite period of time at fu capacity.

The CHAIRMAN. How about these well-established plants in whic quite large amounts have been expended? For instance, the Bethl hem Shipbuilding Corporation at Sparrows Point and at Wilming ton, Del. Those are established yards, are they not?

Mr. TAYLOR. Those are established yards.

The CHAIRMAN. Is it not likely they will need these houses?

Mr. TAYLOR. I have talked with some of the officials at Sparrow Point and tried to urge upon them the importance of their buyin these houses, especially the St. Helena project, which you saw o that list, but they are not interested in that project at all. Those ar convertible houses, without cellars under them, and were built to b occupied practically as dormitories during the war, and there woul be a considerable investment involved in altering them. Those house were already started when I became connected with the corporatio

Senator LENROOT. There is another matter I would like to take up it will not take much time. I would like to ask Mr. Taylor to wha extent plans were standardized for these different projects an houses?

Mr. TAYLOR. Our houses had to be designed to meet varying con ditions at different places. First, climatic conditions; second, th character of the material which was available to us under the ruling of the War Industries Board; third, the habits of the inhabitants o the locality.

Senator LENROOT. I understood a while ago that they compelle you to take material from any part of the country almost?

Mr. TAYLOR. Yes; but on the other hand, when we wanted to buil frame houses in certain instances we were ordered to build bric houses and were told that we could not have the framing—in th New England district, for instance, in certain cases. There was a order out that no frame siding was to be used for house constructio

Senator LENROOT. Who made such an order?

Mr. TAYLOR. The War Industries Board. We had plenty o trouble.

Senator LENROOT. I appreciate that.

Mr. TAYLOR. We could not standardize on a specified house to serv various communities. Take Philadelphia, for instance. The custo of the people there is to live in a two-story front-row house. Tha house would not be saleable or rentable in the average communit adjacent to shipyards throughout the country.

Senator LENROOT. In a specified project, how many designs woul you have for that project?

Mr. TAYLOR. We had a number of designs: six or eight in on project, with slight variations which did not add materially to th

cost but added very materially to the attractiveness of the village in question and the rental value and sale value of the houses located therein.

Senator LENROOT. Was that about the outside number, eight different designs?

Mr. TAYLOR. I have with me, Mr. Ackerman, who was sent abroad as the delegate of the American Institute of Architects to study war housing in Great Britain after the war broke out, who is chief of our design section. I would like to ask him to answer that question, if I may?

The CHAIRMAN. Mr. Ackerman, do you understand the question?

Mr. ACKERMAN. Yes. In the beginning we had no standard plans——

Mr. TAYLOR. May I put something in the record just before that? Another reason why we could not standardize was the varying building restrictions in various cities—the prohibition against frame houses in Philadelphia, for instance, and in Camden and health regulations which governed the specifications of houses and which we could not get away from. There are local ordinances and rulings.

Senator LENROOT. Before Mr. Ackerman answers that question. Did climatic conditions affect the situation, except as between the extreme North and South?

Mr. TAYLOR. Yes. Newport News, for instance, did not require cellars; they are not customary down there. And they have not the prolonged and intense cold in Newport News that they have in the New England States. That would be a fair example.

Senator LENROOT. To what extent would the Newport News requirements be different from those of Jacksonville?

Mr. TAYLOR. Practically the same, except that the type of house which is understood and is in demand at Newport News is of a different type——

Senator LENROOT (interposing). I mean, from a climatic standpoint.

Mr. TAYLOR. From a climatic standpoint there would be a difference. You have more intense heat in summer down at Jacksonville, and you need more open space in the way of porches and ventilation and air space above and higher ceilings. For Newport News, naturally, you need more heating provision. We tried to regard the local conditions as well as we could under the pressure of the situation.

The CHAIRMAN. Now, Mr. Ackerman, you go on.

Mr. ACKERMAN. Perhaps if I describe the project at Newburgh I might thereby indicate what we strove for in the way of variation or lack of variation in the projects. Newburgh consists of approximately 200 houses. There were three distinctive types of six-room houses—I am speaking of the plan arrangement. There was one type of five-room house. There were two type plans of apartments, one a three-room apartment and one a four-room apartment.

Those basic types were varied by changing the position of the porches and in some instances by turning the long side of the house to the street. In addition the three types of six-room houses were made to meet certain living conditions—one house so designed as to make possible the taking of boarders and the other two types varied in order to meet various lot conditions—inside lots and corner lots.

The first projects were rather more complicated, but the later proje were carried on practically along the line of Newburgh.

Mr. TAYLOR. Understand also, Senator Lenroot, that you have have a number of different sizes in each development, because of t varying sizes of the families who are likely to live in the huos Also they vary in size in proportion to the income of the vari classes of mechanics and supervising officials of the plants who a to occupy them. In all cases we discussed very carefully with t shipbuilding company its requirements in these respects, and we g a great deal of valuable data from the shipbuilding compani upon which to base the design of the houses to meet their peculi requirements.

Senator LENROOT. Well, they would not build a house costing. f instance, six or seven or eight thousand dollars because a man wi a high salary could afford to buy such a house as that?

Mr. TAYLOR. No; we have not built any houses which would or narily be occupied by any man of high salary. I simply mean differentiate between the mechanic and the laborer and the subbo in the plant.

Senator LENROOT. That is, you have not built any houses for t purpose of accommodating the superintendent and officials and t higher men in the plants?

Mr. TAYLOR. No.

Senator LENROOT. How are the architects compensated for th work?

Mr. TAYLOR. The architects' fees are stated on a schedule. [E hibiting same.] The average flat fee paid to architects amount to 0.26 of 1 per cent of the cost of the project. The architects in mo instances were allowed in addition to that fee double the amount their pay roll of men actually engaged in drawing the plans und the supervision of the supervising architects, who checked them u The architects' fees, I will add, were very, very moderate, and f below any architects' fees that I had ever heard of before or whi are customary under such conditions. We prevailed upon a lot architects to accept the employment under these conditions in ord to keep their organizations intact, and in accepting this compen tion they acted in most cases in a very large measure from ve patriotic motives. There can be no criticism whatever of the arch tects' fees.

Senator LENROOT. Can you tell us approximately what that allo ance would add?

Mr. TAYLOR. I think Mr. Ackerman can answer that question.

Senator LENROOT. As I understood you, there was an allowan made of double the pay roll of the draftsmen?

Mr. TAYLOR. What is the architects' overhead?

Mr. ACKERMAN. I have not the figures; I could easily get them.

Mr. TAYLOR. I want to give the Senator just as nearly what is looking for as we possibly can.

Mr. ACKERMAN. I would much prefer to answer that as an add tional fact in the record, because I can not answer offhand.

The CHAIRMAN. Did you have one architect for each project?

Mr. ACKERMAN. Generally.

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Senator LENROOT. Don't you know, in a general way, as to what percentage of an architect's fees goes into his expense for draftsmen, his overhead?

Mr. ACKERMAN. Ordinarily in practice the overhead in an architect's office runs anywhere from 75 to 100 per cent of the drafting.

Senator LENROOT. I do not think you understand. Suppose the fee of an architect is 5 per cent; what part of that 5 per cent will be absorbed in overhead?

Mr. ACKERMAN. The conditions vary so that I think it is impossible to answer that question, particularly as there was very little precedent for this sort of work, which made it very difficult to fix the fee.

Senator LENROOT. I am speaking now of the general practice.

Mr. ACKERMAN. I would have to answer that from personal experience only.

Senator LENROOT. I would be glad to have you do it.

Mr. ACKERMAN. You want the relation between the total fee paid and the overhead?

Senator LENROOT. Approximately, yes.

Mr. ACKERMAN. I should say that the overhead would be approximately 2½ per cent of the total fee.

Senator LENROOT. Two and one-half per cent of the total fee?

Mr. ACKERMAN. Yes. It varies greatly.

Mr. TAYLOR. Is that possible, Mr. Ackerman? I do not know whether you gentlemen understand each other.

Mr. ACKERMAN. I am talking about the ordinary fee.

Mr. TAYLOR. Two and one-half per cent of the ordinary fee?

Mr. ACKERMAN. Suppose, for example, a man obtained the fee of 10 per cent for a certain operation. His overhead might very well be 2½ per cent of that.

Senator LENROOT. I understand now.

Mr. TAYLOR. Mr. Smith informs me there is a gentleman here who knows just about what the percentage is. Mr. Mulliken, will you kindly state what percentage of the cost of each project the architect's overhead payment has been, if you know?

Mr. MULLIKEN. I can not give it for each project, but the total of the architect's fee and his overhead of 100 per cent will average less than 1 per cent of the cost.

Senator LENROOT. That is, including his overhead, it is 1 per cent?

Mr. MULLIKEN. That is including everything that the Emergency Fleet Corporation pays.

Senator LENROOT. Now, I want to ask a few questions with reference to your report. According to your report there is a very great difference between the cost of the different projects for housing the individual employee. For instance, I notice here the Groton Iron Works——

Mr. TAYLOR (interposing). That is due to heavy cancellations at Groton.

Senator LENROOT. $1,200,000 was your commitment for housing 306 employees. At Manitowoc it was $560,000 for 500 employees.

Mr. TAYLOR. At Groton—I think I had better get out the Groton sheet.

Senator LENROOT. If you can, give me the cost of the houses at Manitowoc and the cost of the houses at Groton.

Mr. TAYLOR. There was one item at Groton, to provide a buildi for eating facilities for the men, which in the case of Manitowoc w provided by the shipbuilding company in conjunction with the do mitories.

Senator LENROOT. Have you the cost of the houses? That is wh we are especially interested in in the two projects. One is 52 hous and the other is 100 houses.

Mr. TAYLOR. You will find that explained in the report, sir. know about that case. I can give you the reference right here. [I dicating report.] We left the appropriation as it was for 1 houses——

Senator LENROOT. And did not cut down your commitment?

Mr. TAYLOR. The commitment has not been cut down; it is stated in here at the bottom of page 6: "The saving resultant ther from has not as yet been determined."

Senator LENROOT. So that in this table of these commitmen while the number of houses reported is the correct number, the co mitments show the original appropriation for a larger number houses? Am I correct in that?

Mr. TAYLOR. Yes, sir. The saving in Groton, which we have pi tured here, will be about $400,000 on the figure shown.

Senator LENROOT. So that the table here does not really give any information as to the cost, where there have been any cancell tions?

Mr. TAYLOR. No, sir.

I will tell you Senator, why I did not claim credit for that. was because I did not know what it would be; we had not had tin to figure it out when I prepared that statement. I would rather ove state the figures every time than to understate them. Our stat ments are conservative.

The CHAIRMAN. What is the stage of completion of these projec at the present time which you have not eliminated or discontinue at all? What is the stage of completion of those that are not me tioned in this list on page 7?

Mr. TAYLOR. Eighty-one per cent is the average stage of compl tion on January 1.

Senator LENROOT. Have you any that are still being carried c that are not more than 25 per cent completed?

Mr. TAYLOR. I think I am perfectly safe in saying we have n project that is not a great deal more than 50 per cent completed.

The CHAIRMAN. As to these projects that are as much as 81 pe cent completed, you are going to go on and finish those, are you?

Mr. TAYLOR. Oh, we are going to finish everything that we a working on now. We have canceled everything that we could ca cel without serious loss to the Government.

The CHAIRMAN. You have made no new contracts since the armi tice?

Mr. TAYLOR. The last commitment we made was August 22, whic was for Newburgh and Groton. I may say that in view of wha had taken place before the congressional committees we interprete it to be the desire of the Government to curtail, as far as possibl and we acted accordingly.

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Senator LENROOT. You are aware, of course, of the action of the Senate with reference to the housing corporation—the resolution that we passed?

Mr. TAYLOR. I saw a copy of that resolution, sir.

The CHAIRMAN. We will have this testimony transcribed and submitted to you for revision. You can then add such things as we have asked for, and then write out that letter, and we will have them printed as soon as we can. We want it back just as quickly as you can let us have it, and then we will call a meeting of the committee.

Mr. TAYLOR. I would like to add just one thing in line with your thought. We have prevailed upon the municipalities to do a large amount of the street work in these projects, and in many instances have loaned them the money with which to do the work and taken their obligation to repay the same in full to the Government, and these returned items will be a credit on the Government's investment. In all cases where we have gotten public utilities to extend their gas lines, water mains, electric light lines, and railways into the projects we gave aid—that is, where we have loaned them the money they have covenanted to return to the Government 100 per cent of the amount so advanced them with 5 per cent interest. That will be another credit on the appropriations.

The CHAIRMAN. How does that come back; in installments?

Mr. TAYLOR. Generally in five equal annual installments, with interest at 5 per cent, sir.

(Thereupon, at 2.10 o'clock p. m., the committee adjourned to meet at the call of the chairman.)

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# UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION

## HEARINGS

BEFORE THE

## COMMITTEE ON COMMERCE
## UNITED STATES SENATE

SIXTY-FIFTH CONGRESS

THIRD SESSION

ON

## S. RES. 170

DIRECTING THE COMMITTEE ON COMMERCE TO INVESTIGATE ALL MATTERS CONNECTED WITH THE BUILDING OF MERCHANT VESSELS UNDER THE DIRECTION OF THE UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION AND REPORT ITS FINDINGS TO THE SENATE, TOGETHER WITH ITS RECOMMENDATIONS THEREON

JANUARY 23, 1919

Printed for the use of the Committee on Commerce

## PART 7

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# UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION.

THURSDAY, JANUARY 23, 1919.

UNITED STATES SENATE,
COMMITTEE ON COMMERCE,
*Washington, D. C.*

The committee met pursuant to call at 10.30 o'clock a. m. in the committee room, Capitol, Senator Duncan U. Fletcher presiding.

Present: Senators Fletcher (chairman), Ransdell, Bankhead, Simmons, Jones, Sherman, Harding, Calder, and Lenroot.

The CHAIRMAN. Mr. Piez, at the time you were last on the stand, before we adjourned, you made reference to certain memoranda and tabulated statements which you would prepare in answer to the resolution offered by Senator Nelson. Do you desire to make a statement about that?

## STATEMENT OF MR. CHARLES PIEZ, DIRECTOR GENERAL, UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION, PHILADELPHIA, PA.

Mr. PIEZ. Yes; we are submitting complete statements, in tabulated form, Mr. Chairman, a copy of which I have before me.

The first page gives the resolution, and the second page gives a digest of the resolution and of the exhibits and pages on which the replies are made, and this is a complete answer to every query in Senator Nelson's resolution.

In this particular case we have attempted to make all the corrections that we have knowledge of, for additions, extra costs, and changes due to the elimination of what we call the military requirements; so that our tables present, first, the contract prices, and then the estimated net cost of additions; and third, the estimated total costs, reduced, in the final column, to the price or quivalent in cost per dead-weight ton.

The table covers every contract and every type of ship, and it is classified as to character of ships and districts.

The various exhibits, taken together, give the number of shipyards in which ships have been built, are building, or are contracted for to be built in the future on account of and on behalf of the Government.

1. The number of shipyards in which ships have been built, are building, or are contracted for to be built in the future on account of and on behalf of the Government; the location of each of these yards, and whether for wooden or steel ships; the amount contributed by the Government, directly or indirectly, in any form, for the construction and equipment of these yards, and the terms

upon which such contributions were made; the capacity of the several y and the number of ways in each; the number of ships that have been b that are now being built, or that are contracted for in each yard, and the p to be paid for the same; the number of ships actually completed afloat an the service, and the character of these ships, whether steel or wood, and tonnage.

2. Furnish a statement of the aggregate amounts appropriated by the G ernment for shipbuilding purposes, and a detailed, itemized statement as to amount that has been expended, where, and for what purpose.

3. A statement of the number of ships that have been completed and afloat, either steel or wooden, including the date of laying each keel and deliv of ship, aside from the requisitioned ships; and the number of completed s purchased, and the character and price of the same; and whether any of ships turned out by the Emergency Fleet Corporation or the Shipping Bo have been used in carrying troops, supplies, or ammunition to Europe, bringing back soldiers to this country, and, if so, the number, names, character of these ships.

4. The same as to requisitioned ships.

That covers the Nelson resolution completely.

And I should like to ask permission to modify some of the tal presented in answer to the resolution of Senator Harding, so t they may refer to these tables, because these are, after all, the m up-to-date tables; they have been corrected up to the present ti and we offer them as a substitute for many of the tables that w presented in answer to Senator Harding's resolution.

Now, we have, in addition, in answer to the article that appea in the New York World——

The CHAIRMAN (interposing). Before you pass to that I see t you have here [indicating] a diagram of the United States Shippi Board. Is that part of your report under the Nelson resolution?

Mr. PIEZ. No; that is simply tendered in order to show the re tionship between the United States Shipping Board and the Uni States Shipping Board Emergency Fleet Corporation and its t main divisions. There seems to be a great deal of confusion in t minds of the public and in the minds of some of the legislators, as the relationship between the two.

That chart indicates the fact that the Shipping Board is the re lating and policy-making body; that it has selected the United Sta Emergency Fleet Corporation as its agent in carrying out the co struction, under the President's authority, and has also selected t same agency in operating the ships that are either requisitioned built.

The Construction Division operates purely as a supervisory age and as a shipbuilding agent. It gets its authority and its directi from the Shipping Board, as to the number, character, and types ships that it constructs.

That chart is simply a digest of the law, and of the conditions they exist. I thought it might be a handy reference sheet for me bers of the committee, and that it might be offered as an addition the testimony.

The CHAIRMAN. That should accompany your statement, as sho ing your conception of the functions of the organization?

Mr. PIEZ. Yes.

The CHAIRMAN. We will have that printed along with your rep upon the Nelson resolution. I presume the committee desires t whole report printed as a part of our hearings?

Senator JONES. Yes; I think so.

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The CHAIRMAN. The various tabulated statements and other data constituting the answer of Mr. Piez to the Nelson resolution together with the chart which he has submitted will be inserted in the record at that point.

(The statements and charts referred to, in conformity to a subsequent resolution of the committee, will be printed in a separate volume.)

Senator JONES. Mr. Piez, I want to ask you a question with regard to the chart. You do not seem to connect the Emergency Fleet Corporation with the emergency appropriation act which gave to the President the full authority and power under which these billions of dollars that we have expended have been expended.

Mr. PIEZ. No——

Senator JONES (interposing). And the Emergency Fleet Corporation, instead of getting its power and authority from the United States Shipping Board, gets its power and authority from the President of the United States?

Mr. PIEZ. Yes; for the actual expenditure of the money.

Senator JONES. Yes.

Mr. PIEZ. But as to the character and types and numbers of vessels to be built, we have been getting our authority from the Shipping Board.

Senator JONES. Well, does not that authority really come from the President?

Mr. PIEZ. Yes.

Senator JONES. And the authority is given him under the emergency appropriation act?

Mr. PIEZ. Yes; but there is a division of authority there.

Senator JONES. But the President is supreme?

Mr. PIEZ. Yes; the President is supreme; you are perfectly right, that the authority for the expenditure of the money comes directly to the United States Shipping Board. Emergency Fleet Corporation, from the President.

Senator JONES. Well, then; primarily does not he control the character of the ships, too, that shall be constructed out of that appropriation?

Mr. PIEZ. Yes, in accordance with the act he does.

Senator JONES. Yes. Well, I think that ought to be shown here on this chart [indicating].

Mr. PIEZ. Well, that is the relationship so far as the structure of the organization is concerned; and it shows that we are operating under a board of trustees consisting of seven members, five of whom are commissioners of the Shipping Board.

Senator JONES. Yes.

Mr. PIEZ. They are acting, therefore, in a dual capacity; sometimes it is rather a difficult matter to know whether the members of the Shipping Board are acting as the Shipping Board or as trustees of the Fleet Corporation—because it is essentially the same organization.

Senator JONES. What I want to bring out is that this chart does not really correctly represent the organization which constructed the fleet which we have constructed and are now constructing, under the emergency appropriation, because that appropriation was put entirely and exclusively and solely in the hands of the President.

Mr. PIEZ. I might interpolate that between the Shipping Boa and the Emergency Fleet Corporation; I think that will show t true relationship.

Senator JONES. Well, some change ought to be made, so as to ma it perfectly clear, because I do not want a still further wrong i pression to go out, with reference to this war money that we ha appropriated.

Mr. PIEZ. Yes; that is perfectly proper.

The CHAIRMAN. I think it would be well to incorporate that Exec tive order also. What was the date of it?

Mr. PIEZ. July 11, 1917.

The CHAIRMAN. July 11, 1917. That would connect it up wi that order.

Mr. PIEZ. This [indicating chart] shows the structure under t shipping act.

Senator JONES. I know; but what the people want to know abo is the expenditure of this two or three billions of dollars and t building up of the shipping; and when they look at this [indicatin they will suppose that that has been done pursuant to the orders the Shipping Board and under the Shipping Board act, while, a matter of fact, all of that has been done under the provisions the emergency appropriation act.

Mr. PIEZ. Yes, of June 15, 1917.

Senator JONES. I think that was the date.

Mr. PIEZ. I can show that connection; and that will tie those u This [indicating] is the structure of the organization; and I will t it up with the legislation.

Senator JONES. Yes; I think that should be done.

The CHAIRMAN. And attach a copy of the Executive order.

Mr. PIEZ. Yes.

The CHAIRMAN. Now, I might ask this: Mr. Denman desired r to ask what the percentage of the new contract tonnage, excludi requisitioned tonnage, which was completed during the war, w under contract made during the chairmanship of Mr. Denman, i cluding the 16 contracts on his desk when he resigned.

Mr. PIEZ. Well, I will be very glad to furnish that, but it will tal a little time to dig up the information.

Senator JONES. Of what special benefit would that information be

The CHAIRMAN. Mr. Denman wanted me to ask the question Mr. Schwab and Mr. Piez.

Senator HARDING. That is what you might call the return parac of a ghost. [Laughter.]

The CHAIRMAN. He wants to show, I take it, that most of the contracts were made during his administration, including the contracts that were on his desk not signed when he resigned.

Senator HARDING. I can not see that that is of any interest to th committee. I move that the telegram of Mr. Denman be laid upo the table.

The CHAIRMAN. It has already been put in the record.

Senator JONES. Why should we require that information to be fu nished? I do not see any importance in it, so far as the committe is concerned.

The CHAIRMAN. I presume he thought it could be answered o hand.

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Mr. PIEZ. It is rather difficult to make a mental division of contracts by dates.

Senator HARDING. I think it would be perfectly silly to require anybody to make up tables to answer that question. That is dead sea fruit. [Laughter.]

The CHAIRMAN. As a matter of fact, Mr. Piez was not connected with those contracts or connected with this work until some time after Mr. Denman resigned.

Senator JONES. I think the record of this investigation shows the dates of the various contracts.

Mr. PIEZ. Yes.

Senator JONES. It also shows the date when Mr. Denman resigned; and if there is anybody interested in digging out how many contracts were let before he went out, and how many were let afterwards, they can go through the record and do so. [Laughter.]

Mr. PIEZ. It is all available in here [indicating report under Nelson resolution]; but it would take some time to dig it out, and perhaps Mr. Denman might not welcome the answer.

The CHAIRMAN. Well, that is all available there [indicating], and I think that is a sufficient answer to the question.

Senator JONES. Yes.

The CHAIRMAN. Senator Simmons desired to take up the question of housing at Wilmington, N. C., while Mr. Piez was here.

Senator HARDING. But I remember that he also wanted a full committee present when that was done, and we have a rather unpromising prospect to-day.

Senator JONES. Yes.

(Thereupon the committee took a recess of five minutes. Afterwards the following proceedings were had:)

The CHAIRMAN. As Senator Jones has not yet returned, we might go on with the housing matter, as Senator Simmons desires to take that up.

Senator SIMMONS. Mr. Piez, a few days ago Mr. Taylor, of the Housing Division, appeared before the committee, and in the course of his statement he discussed the housing situation at Wilmington, N. C. I would like very much to get your views about the necessity of the Government's building houses there to accommodate workmen and officials of the Government who are there in connection with this work.

Mr. PIEZ. Both yards at Wilmington are Government owned. We have there a yard for constructing concrete ships, and we have there a yard for constructing steel vessels, and we have a contract with the Carolina Shipbuilding Co., which is the Government's agent in charge of the steel shipyard, for twelve 9,600-ton cargo vessels, which is a vessel of a very desirable type.

You will probably remember that the advisability of placing a contract with the Carolina Shipbuilding Co., Mr. Chairman, was discussed with the committee early last year, and it was decided at that time that, because of the emergency, construction of that yard should proceed.

The Carolina shipyard, the steel yard at Wilmington, will probably have the unique distinction of coming within its estimated cost. The yard seems to be extremely well managed, and it lacks only

facilities for accommodating enough workmen to man it properly I think it would be extremely desirable to continue the operations of that yard. Work has progressed to such an extent that it would be very difficult, without great loss to the Government, to cancel it and I think it would be the part of wisdom to put in enough houses there to give that yard an opportunity to employ such a number of men that it could operate economically. I think a very considerable part of the outlay for housing down there, which we estimate to be within $500,000, would come back to the Government in the shape of decreased labor and operating costs. I think that with the very substantial balance that we have available in our housing appropriation that expenditure would be warranted.

Senator HARDING. Right there let me ask, how does Government housing decrease the labor cost?

Mr. PIEZ. It simply gives an opportunity for the employment of more labor. Wilmington is overtaxed—practically every site that we chose for shipyards has been overtaxed; it is impossible either to get sufficient men there or induce men to come there because the housing conditions are so congested that the skilled mechanics are not willing to go there.

Senator HARDING. Let me ask you this, because it will give us further light on the question: You have not built a ship yet, have you?

Mr. PIEZ. No; we have laid four keels. It is a fabricated shipyard, and the fabricated material is well under way. All of the machinery has been contracted for months ago, and the opportunity is there for the construction of a very desirable type of vessel, that 9,600-ton ship, at a very moderate cost. The management has shown itself equal to the task of constructing the yard economically, and I have faith in their ability to construct vessels economically.

Senator HARDING. Do you imagine that the Government will go on operating all of these yards built under Government control?

Mr. PIEZ. That is a matter I am not prepared to answer. I think not, but I do think there is an opportunity for selling yards that are properly constructed, properly arranged, and well managed, and of getting a considerable salvage back in the sale of them.

Senator HARDING. This is a matter I want to get your judgment on.

Mr. PIEZ. Yes.

Senator HARDING. If I may preface a little, in indication of my thought: Here is a Government yard that it is granted is economically constructed and a desirable proposition, in which we have not built a ship, but have laid four keels. Is it a practical policy for the Government to go on building housing for yards that are just in the initial stage, expending large sums of money for housing, when we have not yet decided on the Government's building policy?

Mr. PIEZ. I was going to say that the wisdom of this expenditure is predicated entirely on our going ahead with the entire program. I think that yard would be one of the last ones that I would suspend, under a general suspension order, for two reasons: First, because the construction cost is likely to be low; and, second, because the vessels we are building there are very desirable additions to the nucleus of the merchant marine.

Senator HARDING. May I ask why the construction cost was lower at Wilmington than at other places?

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Mr. PIEZ. I am simply judging from the record that these people have made in building the yard; and they seem to have an ability to cope with the problems that arise in a successful way.

Senator HARDING. Then the question is purely one of management?

Mr. PIEZ. It is purely one of management; the cost in every case is largely one of management. Our fee is very low there, and we have a very ambitious, capable management, and my judgment would be that the vessels being built there are of a very desirable type, and my judgment would be that that contract would be one of the last to be canceled if suspension orders were to be issued.

Senator HARDING. How much has the Government spent on that yard?

Mr. Piez. I think it is inside of $2,000,000 for four ways.

The CHAIRMAN. Yes; four ways.

Mr. PIEZ. Yes; the exact amount is in these tables [indicating].

Senator HARDING. And how much is it proposed to spend for housing?

Mr. PIEZ. About $500,000 at the outside.

Senator HARDING. And how many men would you expect that to accommodate?

Mr. PIEZ. I think something like 700; between 700 and 800, if I remember correctly.

Senator CALDER. If they are private dwellings, that amount would not accommodate much over 200 men.

Mr. PIEZ. Well, they would be combinations of what we call our hotels, boarding houses, and a few private houses.

Senator CALDER. These private houses average in cost $5,000.

Mr. PIEZ. Not in that locality.

Senator CALDER. Well, they do at Jacksonville, Fla.

The CHAIRMAN. No; $3,800.

Mr. PIEZ. We have the land there at Wilmington; we have a very desirable part; I think the easterly end of our shipyard acreage.

Senator CALDER. How many men have you employed there now, under present conditions?

Mr. PIEZ. It is under a thousand.

Senator CALDER. Would that be sufficient to go ahead building on two ways—say we build two ships at a time?

Mr. PIEZ. But that would not work more than half the capacity of the yard, and your overhead expenses would consume the amount. If we can not go ahead with the housing there, we had better shut down operations; that would be my judgment.

Senator HARDING. Do you imagine for a moment that the Government will go ahead with this war program in all of these yards?

Mr. PIEZ. That is not for me to decide.

Senator HARDING. Well, what is your judgment about it?

Mr. PIEZ. I would not do it.

Senator HARDING. You say you expect to house 800 men for about $500,000. I only recall one instance—and I am not recalling it in order to harp about it—where you expended, if I remember correctly, about $3,000 to the housing of a workman, and that is in the Jacksonville yard; that is, the houses cost you about $650,000, and accommodated 316 workmen; and there were 458 of the houses; that made an average of a little less than one and one-third workmen to a house. How do you explain that it would cost $3,000 at Jackson-

[illegible]

Mr. PIEZ. [illegible] like Philadelphia we [illegible]

[illegible]

Senator HARDING. May I interrupt you there? [illegible]

Mr. PIEZ. [illegible] I have from Admiral [illegible] [illegible] workingman's district [illegible] [illegible] were six [illegible] [illegible]

[illegible] at Wilmington was to buy [illegible] of the type that is used down there, which [illegible] the temporary purpose desired, and not build up a [illegible]

Senator HARDING. Let me ask you this: Would you build [illegible] after the war emergency has passed?

Mr. PIEZ. I would if I were going ahead with that operation [illegible] to provide additional accommodations for [illegible] men and charge it up to the ship-construction cost.

Senator HARDING. Then, in substance, before Congress, or [illegible] Emergency Fleet Corporation acts, we ought to fix a definite [illegible]

Mr. PIEZ. Absolutely. I think it is dependent upon that. If [illegible] decided to cancel certain contracts, and this among them, it would of course be absolute folly to go on with the housing. If we decide to go ahead with the full program of 12 ships there, it is my judgment that we ought to make accommodations for some additional men. Our action at Wilmington depends wholly on the decision we make concerning the policy of proceeding with the program that far begun.

The CHAIRMAN. Are the concrete shipyard and the steel shipyard located on the same tract?

Mr. PIEZ. They are within a mile of each other.

The CHAIRMAN. But the Government owns both tracts?

Mr. PIEZ. The Government owns both tracts. We have cut the concrete shipyard down to two ways; it was originally four.

Senator HARDING. What about the concrete-ship experiment? Have we had any definite results from that?

Mr. PIEZ. Our yards are substantially completed. In every case they were cut from four to two ways the minute the emergency appeared to be over. Our program, which originally called for 42 vessels, was cut to 24, and more recently to 14. I think several of the boats are about ready to launch.

Senator JONES. You have not launched any, have you?

Mr. PIEZ. We have not; no.

The CHAIRMAN. I have a letter here regarding the concrete shipyard at Jacksonville, Fla., dated January 18, 1919, which reads, in part, as follows:

Two ships being built here are getting along first rate according to the accounts of the concrete department of the E. F. C., and also according to Mr. Cox, who was here a few days ago.

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The first launching will probably take place in March, and I understand that the ships will probably be launched at at least two of the other Government concrete yards in that month.

The two ships here both have the outside forms completed and substantially all of the steel laid, and work is now going on on the inside forms, and the pouring of concrete will be commenced shortly.

Unless labor troubles develop, and there seems to be no probability of that, the two ships being built here, which are tankers, will cost less than $80 a ton for the hulls, and this contains a liberal allowance for contingencies.

The lowest estimate I have heard for the cost of steel hulls for cargo ships has been about double the figures above mentioned, and tankers cost far more than cargo ships, of course.

That would seem to be much less than the estimates as to any other hulls.

Mr. PIEZ. The two hulls that are almost ready for launching are those at Brunswick, Ga., and Flushing, Long Island. We have spent quite a little up to date in developing the concrete ship. I am strongly in favor of proceeding with these 14 vessels, in order to determine what the outcome of these experiments is to be. I think it is a wise thing to develop further that character of ship, as we are placed in a competitive market for shipping; and we have developed a very light aggregate weight; so that we have overcome, in part, at least, one of the main objections to the concrete ship, that it was too heavy. And I think that we have cut that program right down to the bone, and ought not to cut it any further.

Senator HARDING. Do you recall any practical tests of the *Faith* after she was put into service?

Mr. PIEZ. Yes.

Senator HARDING. Is she doing well?

Mr. PIEZ. Yes; she is doing very well.

Senator HARDING. Has she developed a weakness?

Mr. PIEZ. None, except some minor weakness in structure and some weakness in the deck machinery. I do not think her structure was sound. Her stern frame was not tied up by actual reinforced steel, so that there was some weakness in the hull. But that objection has been overcome. We were afraid she might crack, but she has shown nothing but the merest surface checking and cracking, and she has a large cargo-carrying space and has done very well in all her voyages. She is absolutely bone dry.

Senator HARDING. What service is she in?

Mr. PIEZ. She is in service as a tramp. She is serving in the Pacific. She has sailed from San Francisco to Japan and to Australia.

Senator SIMMONS. Has she not come to New York?

Mr. PIEZ. She has come to New York, and I think she has gone to Liverpool, so that she has had a very good service.

Senator HARDING. Do you know whether the operators had any difficulty in getting insurance on her cargo?

Mr. PIEZ. I do not know. Of course in those cases there is likely to be hesitation in insuring the cargo, because she may leak, but I do not think there has been any hesitation since her first trip.

Senator JONES. What is her tonnage?

Mr. PIEZ. We are building two 3,500-ton and twelve 7,500-ton concrete ships. This is the first time that a 7,500-ton concrete ship has been constructed. We are using those as tankers. I think eight are tankers and four are cargo ships.

Senator HARDING. What was the tonnage of the *Faith?*

Mr. PIEZ. About 5,000. I think the concrete ships give promis of being lower in first cost than the steel ships.

Senator HARDING. Well, that is a very interesting question. If w can build acceptable and dependable concrete ships at one-half t one-third the cost of the others, that is very important to know.

Mr. PIEZ. Well, there will not be that much difference, but we lool for a difference of about 30 per cent, but that is on the first vessels.

Senator HARDING. You said you could build them for about $9 a ton.

Mr. PIEZ. That is the hull.

The CHAIRMAN. Yes; that is the hull; about $80 a ton.

Mr. PIEZ. The cost of the completed ship is about $154 or $155 ton, as against the cost at the present date of about $200 or $205 fo a steel ship of that capacity.

Senator HARDING. It is more than $200.

Mr. PIEZ. Well, if you refer to some of the 7,500-ton ships, but think the steel ships will average later on $205.

Senator JONES. I think the experiments the Government will mak with reference to these concrete ships will be a very wise one.

Mr. PIEZ. Yes; it may be the beginning of an industry.

The CHAIRMAN. Yes.

Mr. PIEZ. All of these yards the Government owns, and we fel that we would be wise in conducting that experiment under our ful direction and control, and it is an experiment that we can stop at an time at very little cost over and above the cost for the materials an labor that have been expended up to date.

The CHAIRMAN. Going back to Wilmington, N. C., you have fou keels laid there——

Mr. PIEZ (interposing). Well, we are building substantially 1 there, including both concrete and steel.

The CHAIRMAN. Two are of concrete and the others of steel?

Mr. PIEZ. Yes, 12 are steel.

The CHAIRMAN. To what extent has the material been ordere there? Are they going right on with that work?

Mr. PIEZ. With the ship construction?

The CHAIRMAN. Yes.

Mr. PIEZ. Yes; that contract was placed in March; and it will b rather a costly contract to cancel; we have others that would be mor easily canceled.

The CHAIRMAN. What is the size of those steel ships?

Mr. PIEZ. They are 9,600-ton tween deck vessels with a large cubi cargo capacity; so that they are very desirable cargo ships; amon the most desirable we have.

The CHAIRMAN. How long would it take to complete those vessel

Mr. PIEZ. Those vessels would be completed at the end of the fir quarter of 1920.

Senator SIMMONS. Do you mean the four of which the keels ar laid?

Mr. PIEZ. No; the 12 under contract.

Senator HARDING. Are you familiar with the industrial situatio at Wilmington?

Mr. PIEZ. I am not, insofar as I have never been there personall We made a very careful examination, when we decided to build ad

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ditional yards, concerning the available locations, and Wilmington was very highly recommended; our agents say that it is a very suitable site.

Senator HARDING. Had there been any other war activities there in the industrial lines?

Mr. PIEZ. No.

Senator SIMMONS. Absolutely none.

Senator HARDING. I asked that question because I was trying to get at the facts as to whether the suspensions of war activities in any other lines would relieve the labor congestion there.

Mr. PIEZ. No; in fact, it was selected partly because it was not congested. In the more congested localities, where there are other war activities, we have not been able, out of our funds, to furnish sufficient housing to take care of all of the housing needs in connection with the Government operation.

Senator BANKHEAD. Taking the construction of ships, is it not true that you can build a ship, not only the material, but the labor, on the Gulf coast, 10 per cent cheaper than you can build on the New England coast, on account of climatic conditions, because you can work every day, and all that sort of thing.

Mr. PIEZ. I am hardly in a position to answer that question, because there are other things that have to be taken into account. The South did not have a very large shipbuilding working force when we began.

Senator BANKHEAD. I am not talking about shipbuilding working forces; I am talking about the men that you have actually working on the ships.

Mr. PIEZ. Well, the climate would be more favorable, because the force would lose fewer days in the year.

Senator BANKHEAD. And could work more hours per day, on account of climatic conditions, there being no freezing, and all that sort of thing, and is it not further true that the houses to be built there can be built and constructed cheaper than you can build houses in New England, on account of the climatic conditions?

Mr. PIEZ. You can build very much cheaper temporary housing.

Senator BANKHEAD. I do not know whether you can build cheaper temporary housing or not. But I mean houses such as those that have been in use for 50 years.

Senator HARDING. I would agree with you as to that, Senator Bankhead, except from having seen the reports from Jacksonville, Fla., where I thought you could build houses very cheaply; but the reports show that those houses cost $3,800 apiece.

Senator BANKHEAD. I am not talking about that. I am talking about the labor that would go into the ship. I do not know what it is at Jacksonville.

The CHAIRMAN. That $3,800 is the average cost; but some of the houses are 8 or 10 room houses.

Senator BANKHEAD. I would guarantee that if you would go to some of those people who have been building houses on the Gulf coast you would find that the houses that are comfortable in our southern country cost very much less than they do in colder sections of the country.

Senator HARDING. The trouble is that they do not do it.

Senator BANKHEAD. Well, why not do it?

Senator HARDING. Well, I wish you would answer that question yourself. I can only tell you what the figures show.

Senator BANKHEAD. What I am trying to suggest is that if you will go to contractors down on the Gulf coast and give them the orders, they will build four-room houses for $1,500 each.

The CHAIRMAN. We can build them ordinarily for that. Mr. Brittain, from Savannah, Ga., is here, and will appear before the committee later; but my information is that you could build them right along down there at $400 per room, for good, suitable houses.

Senator HARDING. That is an awful comment on the report as to your Jacksonville housing, Mr. Chairman. I do not say that in any carping, critical sense, of course.

The CHAIRMAN. I understand that.

Senator BANKHEAD. I have been into one of their houses down there, where they have built them and painted them—they paint them on the same process as Ford uses in building his automobiles——

Senator HARDING (interposing). Well, the point I am getting at is this. I have no geographic prejudices——

Senator BANKHEAD. I have not any, either.

Senator HARDING (continuing). But I can not bring myself to support continuing housing programs when we are building these houses at such enormous cost. The war emergency has passed. If Wilmington were a congested section and this were a shipbuilding enterprise to which we were unalterably committed to go on with; and if the policy was settled and there was no relief except for the Government to provide housing, I would make no objection, but I can not bring myself to support an expenditure for housing at what is clearly twice the normal cost; I think it is more than twice the normal cost.

Mr. PIEZ. Of course we spent an enormous amount of money in overtime, in trying to hasten the completion of these houses, which we would not have to do now.

Senator HARDING. You would have a strike if you did not have the overtime.

Mr. PIEZ. Well, we have not the overtime in the shipyards, and we have not had any strike—except one.

Senator SIMMONS. I do not know what your experience has been in building houses down South; but I have had some experience myself in the last two years in building houses of from four to six or seven rooms. You can build a class of houses in the South of that size for $2,000——

Senator HARDING (interposing). May I interrupt you there? The only reason I have asked these questions is that I always had the impression, from my experiences in Florida, where I spent some time, that in the South you could build houses more cheaply, that you could build houses down there at much less cost than in the cold climate in the North. But the final report issued in the Jacksonville case specifically shows that houses which average less than one and one-third workmen to the building, taking all sizes together, cost an average of $3,880, not including the public improvements that were necessarily assessed against the property.

Senator SIMMONS. That must have been because the requirements for speedy action made it necessary for them to pay very much [illegible] average wage.

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Senator HARDING. I do not mean it as a criticism of the building authorities; they showed here very frankly that they bought their lumber at the price the Government fixed; they paid the price for labor that the Government fixed. I do not know how they could have built more cheaply. I only know that they expended that much money for the housing of one and one-third workmen, if you could use that expression; that is the average cost of furnishing housing facilities for workmen.

The CHAIRMAN. Those same houses at Bristol cost $4,400 each.

Senator HARDING. I have no doubt that is true. I can imagine the houses at Jacksonville could be built a little more cheaply than at Bristol, could they not?

The CHAIRMAN. I think so; undoubtedly.

Senator HARDING. I am not making any criticism of the locality; I am raising a question as to the policy of going on with the work.

Senator SIMMONS. On account of the climatic conditions of the South Atlantic seaboard, you need not build so tight a house as in the colder regions. An ordinary frame house, well sealed, without any papering at all between the sealing and the outer wall, affords ample protection against the coldest weather; and most of the houses that are built in the smaller cities there, and in the outlying districts of the larger cities, are frame houses; and they are just as good in that climate as a brick house.

Senator HARDING. Well, you would probably have to build with a little more thought of climatic conditions in North Carolina than you would in Florida.

Senator SIMMONS. There is not very much difference between that section around Wilmington and Florida in that respect, because at that point we are particularly near the Gulf Stream, and therefore the climate at Wilmington is a very much more moderate climate than that at Raleigh, 100 miles away, because of the proximity of Wilmington to the Gulf Stream, which comes very close to the shore there.

The CHAIRMAN. Undoubtedly the cost of lumber has been unusually high during the war.

Senator SIMMONS. Yes; it has been high. Mr. Piez, let me ask you a question or two, please. You spoke of the small expenditure made by the Government at Wilmington. You fixed it at about $2,000,000.

Mr. PIEZ. Yes; for the steel yard.

Senator SIMMONS. Now, the Government has not been compelled up to this time to build any houses at all there, has it?

Mr. PIEZ. None whatsoever.

Senator SIMMONS. This steel shipyard is something like a mile away from the corporate limits, as I understand.

Mr. PIEZ. Yes.

Senator SIMMONS. There have been quite a number of houses built there on the Government tract of land, I understand.

Mr. PIEZ. Just outside the Government tract of land.

Senator SIMMONS. They have been built by private citizens, have they not?

Mr. PIEZ. Yes; I think something like $250,000 has been spent by private citizens for house construction. The municipality there has

shown every effort to aid us in providing the facilities that the tow lacked.

Senator SIMMONS. Yes. Those houses are chiefly valuable becau of the demand of the laboring people for them?

The CHAIRMAN. Laboring people of the shipyards.

Senator SIMMONS. Yes; I mean of the shipyards.

Mr. PIEZ. Yes.

Senator SIMMONS. Have not the citizens built quite a number houses inside of the corporate limits, to accommodate the requir ments?

Mr. PIEZ. I think the total housing construction amounts to abo $250,000.

Senator SIMMONS. Does that include the houses built by priva citizens in the city?

Mr. PIEZ. I am not certain; I think it does; I could refresh m memory. Mr. Taylor would know more about the details of th than I do, because I have not charge of it myself.

Senator SIMMONS. I think it was stated here some days ago, wh Mr. Taylor appeared before the committee, that something like houses had been built by the citizens in the corporate limits, in a dition to those near the plants. And you say the Government up this time has had not expense on account of having these workm there?

Mr. PIEZ. It has not.

Senator SIMMONS. I believe you said the Government has acquir land for both of these plants; are those tracts separate?

Mr. PIEZ. Yes.

Senator SIMMONS. I believe it was stated that each tract was abo 100 acres in extent.

Mr. PIEZ. The steel shipyard tract is; I do not know whether t concrete yard tract is or not.

Senator SIMMONS. They are about the same size. Both have large river frontage, have they not?

Mr. PIEZ. Yes.

Senator SIMMONS. And the depth of water there is 28 or 30 fe is it?

Mr. PIEZ. Yes; and very little piling is necessary.

Senator SIMMONS. Very little piling is necessary. One of the tracts was donated to the Government, was it not?

Mr. PIEZ. The concrete-yard tract was, I believe.

Senator SIMMONS. The other tract, of 100 acres, the Governme paid only about $17,000 for?

Mr. PIEZ. That is all.

Senator SIMMONS. I want to state that it was estimated by C Taylor, the collector of customs at Wilmington, that each of the tracts was worth about $100,000; one was given to the Governmen the other they sold to the Government for $17,000, so that $17,0 is all that the Government has had to pay there for 200 acres land, conservatively estimated to be worth, as Col. Taylor sa $200,000?

Senator HARDING. Are you pretty familiar with the whole situ tion there, Senator Simmons?

Senator SIMMONS. Yes.

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Senator HARDING. Is it your home?

Senator SIMMONS. No; I live about 80 miles from Wilmington.

Senator HARDING. Please understand the spirit of these questions, that they are not asked in any hostile spirit.

Senator SIMMONS. I understand.

Senator HARDING. The first question is, Do you believe that if we had a fixed policy whereby we would continue the permanent operation of those plants, that the people of Wilmington would be able to furnish this housing to accommodate those workmen?

Senator SIMMONS. I think they would be willing if they were able to; but they tell me that their expenditures on account of this plant being located there, to provide conveniences, etc., have already amounted to something over a million dollars. For instance, when the Government decided to erect a plant there, the Government did not have, and did not propose to install, a plant to furnish its own power. They applied to the power plant of the city of Wilmington for power, and in order to give the necessary amount of power it became necessary for that power company to greatly enlarge its plant.

Senator HARDING. Did the Government have to finance that?

Senator SIMMONS. It did not, except that the Government loaned some money to the power company, which is adequately secured and will be returned; but the power company enlarged their plant by the expenditure of $450,000 in order to furnish the Government with this power. There was a question at the time this plant was located at Wilmington as to whether it should be located at Wilmington or at Charleston, S. C. I think one of the factors in favor of Wilmington was that, if it went to Charleston, the Government would have to spend $1,000,000 to get power, and if it went to Wilmington the Government was guaranteed power without expending any money at all; and the power company has furnished the necessary power. The citizens then have, furthermore, extended the street car system to these plants, at very considerable cost.

Senator HARDING. How far are they from the city?

Mr. PIEZ. About a mile.

Senator SIMMONS. One yard is about a mile; I do not remember about the other. They further built a road and macadamized it, from the city to these plants at their own expense; and they have spent, as Col. Taylor said, $250,000 in building houses adjacent to this plant, which are worth very little unless this plant is continued, or unless they can have the patronage of the laboring men. The citizens have also spent several hundred thousand dollars in building houses in the city to accommodate the requirements of these two plants. In all, not including the donation of this land, the citizens of Wilmington, as I understand, have actually spent a sum of money amounting to over $1,000,000, to provide conveniences and accommodations for the Government employees.

The CHAIRMAN. And it was brought out in the testimony, in our last hearing, of the secretary of the Chamber of Commerce of Wilmington, that Col. Taylor himself contributed something like $30,000.

Senator SIMMONS. Col. Taylor absolutely owned a clubhouse there costing $30,000, and himself contributed that to the Government.

Senator HARDING. Permanently?

Senator SIMMONS. From Mr. Cowan's testimony, I understood it was given indefinitely; I do not know about that. Anyhow, he has turned it over to the managers of this plant.

The CHAIRMAN. It was mentioned as a contribution.

Senator SIMMONS. It was spoken of as a contribution.

I was merely bringing these matters out to show that, to show that if the Government had done, as it has been necessary for it to do in every other case; that is, provide all these things itself, instead of the cost of the plant being $2,000,000, probably the cost would have been $3,000,000 or $4,000,000 to the Government. Of course, the permanent and absolute discontinuance of this work there would cost the people at Wilmington very heavily; Wilmington is a small city of about 30,000 people.

Senator BANKHEAD. How much have you spent in dredging there?

Mr. PIEZ. I do not know; very little; it is one of the most favorable sites we have in that respect.

Senator BANKHEAD. You said you had 30 feet of water there, so that I suppose the expenditure would be very little.

Mr. PIEZ. The channel is a very little distance out; the launching basin is practically in the channel, and it is only necessary to do dredging to a depth of 18 feet in the launching basin. It is a very favorable site, and was erected because the first cost would be low. There is very little rise in the ground; it is almost on the grade of the ways; and that is one of the best sites we have.

Senator SIMMONS. I know something about the situation there, and I know it is the desire of the people there that the Government should not go to any expense in housing these people. They have done everything they could to supply these housing accommodations. It is a bigger proposition than they thought; and I know that they have reached their limit, and it would not be possible at this time for them to raise any further money to accommodate these workmen. I know this also; Mr. Piez has stated it, and I know it because I was in constant communication with the Fleet Corporation at the time they were investigating Wilmington; and I know that the ability of that place, both on account of climatic conditions, labor conditions, and local conditions, was very thoroughly investigated—and my understanding is that the report indicated that it was one of the most desirable places for ship construction, and probably one of the most economical places that could be selected.

I do not know how long labor is going to continue at its present high rate, but I know that under normal conditions labor can be secured as cheaply in that section of the country as it can anywhere—I mean common labor and also skilled labor, to a certain extent. I do not mean skilled labor in the construction of ships, because we have not much of that in the South. I do mean that the conditions are more favorable there than elsewhere in the country for constructing ships economically. I think that was one of the reasons that led to the location of the plant at Wilmington, because they could be constructed economically there. Climatic conditions, in the first place, lend themselves to the program; there is hardly a time in the year that they can not work out of doors; snow falls very rarely there.

The CHAIRMAN. Is it not true that skilled labor from the North prefers to come down South on account of those conditions, if it can locate and get work there?

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Senator SIMMONS. Yes.

Senator HARDING. I want to ask Senator Simmons a question as to general policy.

Senator SIMMONS. Before you ask that I want to say that I do not know what will be the policy of the Government with reference to ship-construction work; but I assume that the Government is not going to suddenly stop shipbuilding; I assume that we have not the mercantile tonnage that we need, and that whatever may be the permanent policy of the Government, for some time, at least, until we have somewhat approximated the requirements of the present situation, the Government will go on building ships. Now, if it is going to build at all, I do not know of any place where it can build more expeditiously and more economically than it can at Wilmington.

There are employed there now somewhere between 800 and 1,000 people. That force is not an adequate force for the economical construction of either four or two ships at a time, as I understand; and it seems that the housing space is absolutely exhausted and that unless they can secure additional housing room there it will be impossible to obtain any increase in the number of men now employed.

Senator BANKHEAD. Right along that line, I understood Mr. Piez to say a while ago that, whatever the future policy of the Government might be with reference to shipbuilding, so far as he was concerned this would be one of the last yards in the country that should be abandoned. Did I understand you correctly, Mr. Piez?

Mr. PIEZ. Yes.

Senator HARDING. Here is a question that I want to ask, that I think is important to the committee, because this committee, I take it, is going to have something to do with deciding the future policy:

Throughout the country there are scores of instances identical with that of Wilmington, to a greater or less degree—that the Government has gone to a city and put them to expenses, and has made them draw upon their resources in the expenditure of money and other activities.

Now, I want to ask further if it is a better policy to carry on the operations at Wilmington and these other places at a moderately restricted rate of building, so that the people who have put their money, for example, into these privately built houses and into the promotion of these public works necessary to establish the plant can obtain some realization upon their investment, rather than to put a half million dollars into additional houses, to be temporarily occupied, and then later on suspend this industry by a wholesale discontinuance?

It seems to me that we would treat everybody more fairly, and particularly Wilmington, if, instead of going now with further housing expenditures, we applied the Government's funds to the building of ships as practicably or as economically as possible, say, on two ways, and employed the 700 or 800 men that are now engaged in the work—it seems to me that would be better than drawing more men in there and then have a sudden suspension or collapse of the building boom.

Senator SIMMONS. Let me ask Mr. Piez a question that is pertinent to your inquiry, Senator Harding: What would you think of changing from a four-ship to a two-ship basis, Mr. Piez, in view of the fact that you already have the keels laid for four ships?

Mr. PIEZ. Of course that could only be done at a distinct increase in cost. Then, too, we want to bear this in mind, that if we slow up the production very much we may deliver the ships at a time when ship values are materially below what they are to-day.

Senator HARDING. Well, that is inevitable now, is it not?

Mr. PIEZ. That is absolutely inevitable now. Of course I would not pay at this time an excessive cost in the construction of the hull in order to obtain speeding up.

Senator SIMMONS. Mr. Piez, if you are going to make a cut in your general program, would you think it was good policy to make that cut arbitrarily wherever ships were being built in the same proportion or would you think it better policy to make the larger cuts where the cost of production was greater and the small cuts where the cost of production was less?

Mr. PIEZ. That would be one of the considerations, of course, to make the largest cuts where the yards were least productive and least economically conducted. Another very important consideration, however, must be borne in mind, and that is that we want to cut out the undesirable types of ships. First, the very small ships, the ships that are not likely to prove of value to us in a competitive way—and the reason I would select Wilmington as one of the last to cut is because that is probably one of the most desirable cargo carriers that we have.

Senator HARDING. Well, I agree to that statement; but, as a matter of fact, you would not believe that the type of ship constructed there was even large enough, would you?

Mr. PIEZ. Well, I think that represents a very excellent type of ship. We would not want very many larger than that; we would some.

Senator HARDING. As I gathered from the conference of the shipping men held yesterday, they want a still larger cargo carrier than 9,000 tons.

Mr. PIEZ. Yes; larger than 9,000 tons; but you can not build a large number of those; you can not find a place to build them. I think the average cargo carrier is 7,500 tons. This type of ship being built at Wilmington has a very large cubic capacity, so that it can store away a large tonnage of miscellaneous light cargo; it is a 'tween deck ship, so that you do not have to be very careful in your stowage; it has many advantages of that kind, and we are not building a great many of them.

The CHAIRMAN. We will come back to that question in a moment. I want to call attention to some facts about that and some experience that the great shipbuilding country of the world has had as to the size of ships. But, for the moment, let us get this point clear: Senator Harding's idea is, as I gather, that we ought not to proceed on this program we have now with reference to speeding up and resulting high cost; in other word, we must get shipbuilding down to an economical basis.

Senator HARDING. You have my idea exactly, Mr. Chairman.

The CHAIRMAN. Now, the question is, suppose you own that yard and you are going to operate it on an economical basis so as to make it pay; would you build these houses to supply the labor needed to put it on that basis, or could you put it on that basis without building the houses? That would be the question, would it not?

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Senator HARDING. Suppose you go on in your hypothetical question and add another condition. I wish I could put it in a sentence, but perhaps I can give you an idea of what is in my mind: It is perfectly unthinkable that the United States of America is going on building ships as we proposed to do for the war emergency. Why, we would have more merchant marine than all the world put together in a few years. It is absolutely inevitable that it must be cut down.

Now, it is impossible, on the question of cost alone, it is utterly out of the question to go on building millions of tons of shipping every year, as this program proposed. Knowing that fact, what is the best treatment of the city and people of Wilmington? Mr. Piez said you could not cut down the operation without increasing the cost. I assume he means by that that because of the investment in ways and prepared capacity of the plant there would be an excess of overhead cost on reduced production.

But is it not a fact that, no matter what policy you adopt, you have got to take the loss due to the cutting down in any event, because these yards have been built out of the Public Treasury, and it is perfectly hopeless to think of using all of them to full capacity.

Is it not the righteous treatment, both at Wilmington and the other places favorably located, to take our loss in building the ways that a normal procedure would call for, and prepare for an operation, presumably along the lines of the present employment? In my judgment, Senator Simmons, that would be infinitely more considerate to the people of Wilmington and everybody concerned there than to momentarily inflate operations and then have the collapse that is inevitable. If you could stabilize the employment of those 700 or 800 men under present housing conditions, the citizen who has patriotically gone into his pocket and built a house for the workmen will get a return on his investment. You are not calling in the temporary working forces of the country to inflate those operations; you are going along in a stable way, the very thing you wont throughout the country. I think we would be doing an injustice to go there and spend $500,000 for housing when it is so manifestly certain that ultimately these operations must let up. Is that not a fair view of the situation, Mr. Piez?

Mr. PIEZ. If the ultimate object is to cut down and cease production.

Senator HARDING. Well, we must do that, must we not?

Mr. PIEZ. I think so.

Senator HARDING. And it is unthinkable that we would go on with all of these shipbuilding operations that we prepared for during the war.

Mr. PIEZ. We can not go ahead with all of them.

Senator HARDING. Now, speaking for myself, notwithstanding my radical views, I think we have got to utilize these Government yards; and I think Wilmington is very fortunate to have gotten one of them, and perhaps the Government is fortunate to have built one there; but I think it is unthinkable that we are even to go on with the Government yards to the extent to which they are building now. If the yards at Hog Island were to go on at the program proposed, Hog Island alone could build all the ships we would use after we had made up the loss incident to the war.

You must think about the future in these things. I would desp anybody in my town who would give us a momentary inflation of h a million dollars worth of housing and later on drop everything th and leave them as marks of "busted" inflation; it would be a m miserable state of affairs; the town would look like a relic of ot days.

Senator CALDER. Or the Deserted Village.

Senator HARDING. Yes. My only object is to look at the mat from a broad, Government viewpoint. I think we would do infinit better if we adjusted our operations to the conditions that prevail Wilmington now and then give the people of Wilmington the ben of Government activities in that community.

Senator SIMMONS. I assume in this process of curtailment, if t Government is to continue building to any extent at all, it would pr ably continue to build where the cost is lowest. Now, what case c you strike where the Government has acquired, without any cost f housing, a four-way shipyard, at an expenditure of only $2,000,000?

Senator HARDING. If you think I am criticizing Wilmington, Se tor, you have the wrong idea.

Senator SIMMONS. I do not think that and I am not making th point. I am making the point that the Government would probal retain and continue to work those yards, or most of those yards, t cost of which has been small as compared to the average yard or t average cost.

Now, the cost at Wilmington, I think—I do not know; I am spea ing without information, but just as giving my impression—I thi it would be hard—and I want to ask Mr. Piez whether I am corr about that—to find any other place where the Government has secur the construction of a shipbuilding plant with a capacity of four wa the yards being finished and four ships with the keels laid at expenditure of only $2,000,000.

Senator HARDING. Well, let us grant that——

Senator SIMMONS (interposing). When the cost of production the Government, of course, depends in some degree upon the cost money invested in plant and in equipment. If the money invested the Government in plant and equipment there is very small as co pared with the money so invested elsewhere, then the Governme can operate this plant at less than it can the other plants. I do n know whether I am correct about that.

Senator HARDING. I will agree to all of that.

Senator SIMMONS. I think I am correct. I want to ask Mr. Pi about that: Has the Government any other shipyard in the countr constructed by itself, where it has, up to this time, not had to spe anything for housing? You have there a shipyard employing fro 800 to 1,000 people; the city has provided the houses. Have you li conditions anywhere else?

Mr. PIEZ. We have in the concrete yards.

Senator SIMMONS. Yes; in the small concrete yards; but I a speaking of the steel yards.

Mr. PIEZ. Not in the steel yards; no.

Senator SIMMONS. I want to ask you another question: Have y anywhere in the United States succeeded in constructing and equi ping a four-way plant at as little cost per way as you have in Wi mington—that is, $500,000 per way?

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Mr. PIEZ. That is about as cheap a yard as we have.

The CHAIRMAN. If the Government built these houses there on its own land, would that vacate any of the houses that the people have built just outside the yard?

Mr. PIEZ. It ought not to; it ought to enable us to add more men to our force.

Senator HARDING. Then, what would be the effect when you reduced the forces, as you inevitably must do?

Mr. PIEZ. Somebody must suffer, of course.

Senator HARDING. That is the point I wanted to make.

The CHAIRMAN. How about the furnishing of lights and building of sewers? Would that have to be done?

Mr. PIEZ. I think the sewers are in; I am not certain about that, however.

The CHAIRMAN. Would that be included in this $500,000?

Mr. PIEZ. Well, we would have to put in the connections, but the main sewer is in.

Senator SIMMONS. Is not this true: That if the Government should abandon shipbuilding at Wilmington and put its plant on the market, by reason of those conditions of water, climate, etc., and of the small cost of the yard—is it not true that, if shipbuilding is to continue in this country, either by the Government or by private enterprise, that the salvage cost to the Government at Wilmington, if it lost anything, would be small?

Mr. PIEZ. Smaller than anywhere else.

Senator SIMMONS. I do not believe, if the Government goes out of the shipbuilding business, that we are going to have a condition with reference to ship construction such as we had before the war.

Senator HARDING. I hope not.

Senator SIMMONS. I think the main thing is to create a merchant marine permanently.

Senator HARDING. We are in accord on that.

Senator SIMMONS. That is going to give an immense stimulus to our foreign trade and to American shipping. And I believe that a plant that is as favorably located and constructed at as small a cost, would be a very inviting proposition to a man who wanted to go into the shipbuilding business.

Senator HARDING. I am fighting for Wilmington, as well as for the United States Treasury. But assume all you say is correct—and I agree with you as to the shipbuilding industry—we will have failed in our aspirations, if we do not build a large number of ships. But you are employing 700 or 800 men at Wilmington now, under the war pressure; and it is reasonable to suppose that that would be all that would be employed under normal conditions; and if that is all that can be profitably employed in normal times, it will be better to have that natural and permanent operation, instead of a mushroom growth incident to the war emergency.

Senator SIMMONS. I assume that if private capital should ultimately acquire that plant and, in the meantime, the Government should continue it as a four-way plant, the private purchaser would also continue it as a four-way shipyard, especially where he would be able to purchase it at small cost.

Senator HARDING. This is what I can not understand. You have housing there now for the number of men employed at present.

Senator SIMMONS. Yes; for the men employed at present.

Senator HARDING. Now, the war emergency has passed. How can you believe that you are going to have a condition at Wilmington requiring an increase in the number of men employed during the war emergency, when the war emergency itself has passed?

Senator SIMMONS. But there are not half enough men employed there now to build those four ships. Is that not true, Mr. Piez?

Mr. PIEZ. Pardon me; I did not understand.

Senator SIMMONS. How many men would it require to build these four ships under construction?

The CHAIRMAN. Economically?

Mr. PIEZ. Somewhere between 1,600 and 2,000.

Senator HARDING. Pardon me; but barring overhead expenses, 500 men could build four ships, could they not?

Mr. PIEZ. Of course, eliminating the question of time.

Senator HARDING. Well, the time emergency has passed.

Mr. PIEZ. Well, the overhead is a considerable factor in the case.

Senator HARDING. The overhead in all these yards must be charged off, must it not?

Mr. PIEZ. It is a perfectly proper part of the cost of the ship.

Senator HARDING. But you must charge it off, whether it is at Hog Island, Bristol, Newark, or anywhere else; you can not go on with it.

Mr. PIEZ. I do not think we are talking about the same thing. I mean by "overhead" the annual depreciation of the plant, the supervision, and all the expenses that can not be charged to the construction of a certain vessel.

Senator HARDING. That must all be charged off just the same, must it not?

Mr. PIEZ. No; if the plant is employing all the men it can, the overhead will come down.

Senator HARDING. Well, you are a manufacturer, are you?

Mr. PIEZ. Yes.

Senator HARDING. Now, wiping out any local prejudices we may have—and I am quite in sympathy with Senator Simmons in his feeling as to Wilmington—do you believe, as a manufacturer, and from your experience with the Emergency Fleet Corporation, that it is at all thinkable that these operations are going to go on at the present rate?

Mr. PIEZ. They will probably be cut down to 40 per cent of their present rate.

Senator HARDING. That is, reduced 60 per cent?

Mr. PIEZ. Reduced 60 per cent.

Senator LENROOT. Do you mean by the Shipping Board, or are you contemplating action by Congress?

Mr. PIEZ. No; I mean letting the thing drift back to normal conditions, taking care of the waste of our fleet, and making such renewals as may be necessary. I think the output, say, three years hence, will probably be 40 per cent of the present output.

Senator LENROOT. By the Government?

Mr. PIEZ. I am not arguing as to that. I mean, after this fleet is completed, if we do not enlarge it beyond its present shape, I think

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probably 2,500,000 tons a year would be a fair production, and that is 40 per cent.

Senator HARDING. I hope this is not an embarrassing question: If you yourself owned the Wilmington shipyards, would you spend this money for housing there now? If it would embarrass you to answer that question, you need not do so. [Laughter.].

Mr. PIEZ. You are asking me now for a personal opinion.

Senator HARDING. Well, ought not a man to do work for the public as he does for himself?

Mr. PIEZ. Well, but I do not determine the policy. I am not an optimist on the future.

Senator HARDING. You have answered my question sufficiently.

Senator LENROOT. Is it not true that there are a large number of private yards that were installed since the beginning of the war, where the Government has done no housing whatever?

Mr. PIEZ. Not very many.

Senator LENROOT. I know of one, in my own city, as a matter of fact.

Senator JONES. I know of one.

Mr. PIEZ. Yes, on the Great Lakes; I was not thinking of that. We have done very little on the Great Lakes. But I am thinking now of the Atlantic and Pacific coasts.

Senator LENROOT. What do you estimate will be the overhead expense in the Wilmington yard—the percentage to direct labor on a four-ship program?

Mr. PIEZ. I am not prepared to answer that offhand. I am willing to look it up, but have not that figure in mind.

Senator LENROOT. If the overhead expense is such a material factor, would it not be more economical to construct the ships at the Hog Island yard, which you really need, and where you could construct 50 ships at a time, and thus reduce the percentage of overhead?

Mr. PIEZ. Hog Island is constructed to build one type of ship.

Senator LENROOT. Well, you are building two types there now.

Mr. PIEZ. We are at present, but we should never have done so. That yard was constructed for one type of ship. Therefore, you could not transfer to Hog Island the problem of building vessels of varying tonnages.

Senator LENROOT. I want to say to Senator Simmons that I live in a city of 50,000 population. We have three private yards. The first yard we got into the city by giving them the land and a bonus of $250,000. We are now building more ships in those three yards and employing more men than are proposed to be built at Wilmington, and the Government has not spent a dollar for housing.

Senator SIMMONS. What is the size of your city?

Senator LENROOT. Fifty thousand population.

Senator SIMMONS. You probably had a great many vacant houses.

Senator LENROOT. We had no vacant houses; but they were provided by private capital.

Senator SIMMONS. I presume that you were fortunate in living in a very wealthy community, while Wilmington is not a wealthy community.

Senator LENROOT. No; it is not a wealthy community.

The CHAIRMAN. What is the size of the ships being built there?

Mr. PIEZ. Three thousand five hundred and four thousand tons.

Senator HARDING. You are building ships in my own State, and hope you will not build any more there.

Mr. PIEZ. I agree with you on that.

Senator SIMMONS. Mr. Piez, what is the number of tons, i round figures, that you have added to our merchant marine throug the operation of this shipbuilding program?

Mr. PIEZ. Since its beginning?

Senator SIMMONS. Yes.

Mr. PIEZ. Somewhere about 3,300,000 tons thus far; that is, de livered ships.

Senator SIMMONS. 3,300,000 tons.

The CHAIRMAN. The tonnage under construction amounts to hov much, in addition to that?

Mr. PIEZ. In addition?

The CHAIRMAN. Not those under contract, but under constructior

Mr. PIEZ. Oh, under construction. The total number of ships—this I developed in answer to Senator Harding's question—unde contract was 2,963; keels are laid for 1,700.

The CHAIRMAN. That does not give us the tonnage.

Mr. PIEZ. That represents a tonnage of about 8,500,000.

The CHAIRMAN. The point I am trying to get at is this: Yo have actually completed and now in the service 3,300,000 tons?

Mr. PIEZ. Yes.

The CHAIRMAN. And you have under construction now——

Mr. PIEZ (interposing). About 5,000,000 tons.

The CHAIRMAN. About 5,000,000 tons in addition; yes.

Senator SIMMONS. You say when you have finished this progran that you are carrying out, you will have added that many tons t the merchant marine of the country. And you think that the ship building program afterwards would probably be reduced to abou 40 per cent of the present one?

Mr. PIEZ. About 2½ per cent a year, I should say.

Senator SIMMONS. That has reference to the new construction?

Mr. PIEZ. New construction and replacements.

Senator SIMMONS. And repairs?

Mr. PIEZ. No; I am not considering repairs.

Senator SIMMONS. Well, if you add this tonnage, you have got t provide for repairing that enormous addition, have you not?

Mr. PIEZ. Yes; but I was speaking simply of shipyards, and no repair yards.

Senator SIMMONS. That is the point I wanted to develop. Now if you take 40 per cent as a continuing proposition, what per cen would you take as an additional repair proposition?

Mr. PIEZ. Well, have you in mind establishing a repair plant n Wilmington? That would depend a good deal on the harbor.

Senator SIMMONS. No; what I am trying to get at is whether th equipment that you now have will be excessive to meet the demands

Mr. PIEZ. Converting the shipyards into repair plants?

Senator SIMMONS. Yes; as well as for those additions?

Mr. PIEZ. That would be one conversion we would make. Prob ably our very large yards would have to go out of business. I think the yard of the future is a 10 or 12 way yard.

Senator SIMMONS. When you speak of "going out of business," do you mean Hog Island?

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Mr. PIEZ. Yes; I think so.

Senator HARDING. Mr. Chairman, Mr. Piez has given me the suggestion of the question that I want to ask: I want to ask him a very important question. He just stated that there were approximately 1,200 vessels under contract that have not been begun.

Mr. PIEZ. One thousand two hundred and sixty-two. Of those, 223 have been canceled.

Senator HARDING. Two hundred and twenty-three have been canceled; that leaves more than a thousand——

Mr. PIEZ (interposing). One thousand and forty.

Senator HARDING. What is the approximate cost of those ships? Can you give that readily?

Mr. PIEZ. A billion three or four hundred thousand dollars.

Senator HARDING. Can you give me the approximate sacrifice in canceling those contracts—the cost of cancellation?

Mr. PIEZ. That would be very considerable, because, in many of those cases the work has progressed very largely. I do not believe that you could cancel all of those, Senator, for less than $600,000,000; probably $600,000,000 or $700,000,000.

Senator HARDING. In other words, it would cost half to cancel them?

Mr. PIEZ. Substantially half.

Senator HARDING. Those the keels of which have not been laid?

Mr. PIEZ. Yes. Now, I think you could cancel 3,000,000 tons at a cost of, perhaps, $250,000,000; and you could cancel about 1,500,000 dead-weight tons at a cost not to exceed $100,000,000. I think our policy ought to be this—you expressed yourself as being rather opposed to continuing the construction of the small lake vessels. We have got some 420 or 430 hulls to be delivered under our contracts there; but I think we can find an easy market for 150, for foreign account, and I think we ought to do it and clean up our program on that account. We have an offer to buy the 25 ships at Hog Island—from a foreign Government. They are to pay cost. It would be an extremely wise thing to do; because I think we have more 7,500-ton ships than we need in our internal program. I think we could probably sell a million tons; and I think we ought to, under our present program.

Senator HARDING. Fine.

Mr. PIEZ. And then, if we are going ahead on the merchant marine, I think we ought to build every type of vessel that would be of value in the conduct of large transportation.

Senator HARDING. Fine.

Mr. PIEZ. Now, we have not yet been advised of the policy in regard to that, although we have cabled for it.

Senator HARDING. Fine. Apropos to this policy of cancellation, the president of the Shipping Board has talked of writing off a billion dollars or more. Which will be of less cost to the Government, continued construction and writing off to make these ships available to the operators at a figure possible for them to operate at or cancellation and taking the loss before we build?

Mr. PIEZ. That depends on the type of vessel. We are making a very careful survey now as to the suitability of all the vessels that we are building for foreign trade. Of course, it is a well-known fact that vessels of a special type, built for a special carrying service,

are the most profitable. But there is a very great need of the s called tramps, because the destructions by the submarines have be very considerable. There is a very considerable need for shippi at present. I do not know how long that will continue, because v have got to wait until the export business reestablishes itself. It h been atrophied by embargoes and by the limitations that had na urally to be imposed upon it. The question of right is one, I thin that ought to be taken up entirely apart from the question of ca cellation.

I think the policy of the board will be to cancel, where it can c so for a moderate cost, up to, say, a million and a half; and to su pend beyond that, substituting for the suspended contracts vesse of a more desirable type. Let us eliminate, in considering our me chant marine, the million tons of wooden ships, which were purel emergency ships and will not have any permanent part in it. The were very good emergency ships, and those constructed will mak good ships for some years.

Senator HARDING. In making this estimate of cost of cancellatio have you assumed that the material for the fabricated ships will b a dead loss?

Mr. PIEZ. No; we are giving some salvage value to that; but muc of it has been punched and sheared for the special purpose for whic intended, and a large part of it will be substantially scrap, unles you can sell it to foreign yards for construction.

Senator HARDING. The point I am trying to get at is, would it b feasible to enter into negotiations for cancellation and at the sam time sell those fabricated materials to somebody who could go on an build ships for private account?

Mr. PIEZ. I do not think it would be feasible. I think it woul be better to sacrifice some; some can be disposed of at cost and som can be used in finishing the ships.

The CHAIRMAN. Now, on this question of selling ships for foreig account, I want to say that I am not opposed; on the contrary, I agre as to the disposition of some of the ships that may not be altogethe satisfactory. That policy has been pursued by Great Britain.

Mr. PIEZ. It is being pursued now.

The CHAIRMAN. It is being pursued now. She sold some 750,00 tons to foreigners the year before the war. Her idea in doing tha was to keep her mercantile marine up to date. Three-quarters o her ships were not over 15 years old, and half were not over 10 year old; and she adopted the policy of selling her ships which were no so desirable to foreigners.

Mr. PIEZ. We had a cable within a day or two stating that sh had offered all of her vessels over 15 years old for $88 a ton, wit transfer of flag—a very desirable proposition.

The CHAIRMAN. I would like you to hear this statement by Sydne Brooks, the well-known English writer on shipping, which is foun in Senate Document No. 335, Sixty-fifth Congress, third session—an I hope the members of the committee will read that document. H says:

The average size of the ships trafficing in the European trades proper wa under 1,000 tons, and in the Mediterranean trades about 2,700 tons; while th extra-European commerce employed about twice as many steamers, averagin some 4,400 tons apiece, and nearly five times as much tonnage.

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Mr. PIEZ. That is gross tonnage.

The CHAIRMAN. Well, I take it it is net.

Mr. PIEZ. Well, I do not know whether it is gross or net; but if it is gross, it would be about 6,500 dead-weight tons and if it is net it would be about 9,000 dead-weight tons.

Senator HARDING. Well, he was speaking of the traffic around England, Scotland, and Ireland.

The CHAIRMAN. No; this had to do with the whole European trade, which averaged about 1,000 tons to a vessel, and in the Mediterranean trade the average was about 2,700 tons. He goes on to say:

It was in these great ocean trades with the Americas, with West and South Africa, with Australasia, and with all the countries east of Suez from Persia to Japan, that the predominance of British shipping was most conspicuously manifested. Our tonnage on these routes was almost equally divided between the American trades on the one hand and the eastern, Australian and African trades on the other.

And that was the size of their vessel.

Mr. PIEZ. We have a bigger pecentage of the small vessels, and our lines are rather longer than theirs.

Senator HARDING. The chairman will recall that the great bulk of the small ships in Great Britain are used in the Baltic Sea and the Irish Sea, and they can use small ships there.

The CHAIRMAN. But they went to South Africa, the Americas and Australasia, with these 4,400-ton ships.

Senator HARDING. I will have to ask the chairman to excuse me, as I have to leave; but I will be very glad to have Mr. Piez "carry on" and read the record later.

The CHAIRMAN. We will have the record of this hearing printed and take those questions up later.

Now, with reference to the shipyard at Savannah, Ga.—the Terry Shipbuilding Co.—there is a housing proposition there, and from the report to this committee regarding housing operations of the Fleet Corporation, it appears that 110 houses, 1 hotel, and 2 boarding houses have been eliminated. Mr. Piez, will you tell us about that situation at Savannah?

Mr. PIEZ. We were under commitment there to go ahead with about $350,000 of housing; that was reduced, I believe, from $750,000.

The CHAIRMAN. Yes. You feel committed to go ahead with that, do you?

Mr. PIEZ. We did so feel; yes. We have been rather holding up because of the armistice and because of the expressed attitude of Congress against further housing construction.

The CHAIRMAN. Under normal conditions, suppose we are operating now upon an economical basis, do they need these houses now?

Mr. PIEZ. They do, very much. It was not a very wisely located yard in the first place, because it had absolutely no housing provision near it.

The CHAIRMAN. Proceeding rather informally, I will suggest that Mr. Brittain is here. Mr. Brittain, do you desire to make any statement to the committee about the matter?

## STATEMENT OF MR. HENRY L. BRITTAIN, TERRY SHIPBUILDIN CORPORATION, SAVANNAH, GA.

Mr. BRITTAIN. Yes; on that point that Mr. Piez made, that it w an unwisely located yard.

Mr. PIEZ. From the housing standpoint.

Mr. BRITTAIN. Yes; from the housing standpoint it is true th there was no housing adjacent to the yard. But when the locatio was made, one of the conditions of purchasing the property—t property was purchased from the Savannah & Atlantic Railroa Co., and one of the provisions in the purchase contract was that th company would provide for us $1,000,000 in housing.

After proceeding with a certain number of these houses it was a solutely impossible for that company to go ahead in the constructio of those houses. The railroad company is not in very good shap And we have built out there 130 houses and 2 large hotels, which hav accommodated several hundred of our employees. But we have bee holding our force together with the promise that this appropriatio which the Emergency Fleet Corporation had made for us would b forthcoming, and we have made our plans accordingly. We onl went to the housing committee after we had exhausted every means a our disposal to get the railroad company to proceed with the construc tion.

As a matter of fact, what they did there was that the Terry & Tench Co., of New York, financed us. After we found that it was impossible for them to proceed further, we took up the question wit the housing committee of the Emergency Fleet Corporation, looking toward getting an appropriation from them. The appropriation was finally made for $750,000.

When we got ready to proceed with the building and went to tak over additional property from this same railroad company on which to give a mortgage to the Emergency Fleet Corporation we found some lien on the property by reason of the railroad's financial con dition, which lien it has taken us a great deal of time to get removed. So much so, that while our arrangements have been made and a lot of our material has been bought, we have only recently come to a point where we could go ahead with the construction; and after the armistice was signed I took up the question with Mr. Taylor of the housing division, and he said he would like to know whether the company would guarantee the return of this money that the Fleet Corporation would advance, with the usual write off—not less than 30 per cent—but at an appraised valuation at a certain time, and I told him that we would; that we felt the housing was so necessary that we would do that. And, furthermore, I and Mr. Terry would add our personal indorsement for the advance, because we felt it would cost us considerably less, even if we had to pay for all of these houses, than it would to get men out there and then have the excessive turnover, which would be very large as we had bad transportation facilities.

The conditions on the public road out there are also very bad. We have ordinarily 225 to 230 automobiles coming out there, and the road is in such condition that the automobiles can not get down there. And while the county is now voting on a bond issue for improving roads, that is in the future.

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And we felt that even if we had to pay back all of this advance and there was no salvage value, it would pay us to build these houses rather than have the turnover, which is very expensive to any yard.

We feel also that these houses will be valuable, because there is a large paper mill and a sugar mill near there which have no housing facilities at all, and they are crying for houses all the time, and these houses would be valuable for those industries after our program was finished.

The CHAIRMAN. How far is it from Savannah?

Mr. BRITTAIN. Nine miles by road and 7 by the river.

Mr. PIEZ. What lines of transportation have you?

Mr. BRITTAIN. We have this little dilapidated road, which brings the majority of our people out in the morning. Sometimes its train gets there an hour late, and, of course, that is very expensive to us.

The CHAIRMAN. Is it a steam road?

Mr. BRITTAIN. It is a steam road. And we have two boats, one of which got out of repair and was held up on the way for six months because they could not take it off, and we were deprived of that boat. And that was one of the matters which had to be cleared up in order for us to get the men out there.

Mr. PIEZ. You have not any connection with this land company, have you? There is some rumor that you have.

Mr. BRITTAIN. No connection whatever, except this: When we took over the property out there, under a contract by which they were to supply us with a certain number of houses, the Terry & Tench Co., of New York, contracted with the Port Wentworth Terminal Co. for the building of these houses.

Mr. PIEZ. I see.

Mr. BRITTAIN. And we have absolutely no interest in it, except that we wanted to take the contract of building, because under our arrangement we had to pay them a certain amount—and if we could we wanted to get the maximum amount of the investment out of which we had to pay. And, as a matter of fact, the company at the time owed us about $200,000 for the building, and still owes us some small amount, and until recently it was a considerable amount. And it got to the point where we found there were not the people to go ahead. And, of course, we were unable to carry out their policy and furnish the money. And it was at that time that we went to the Housing Division. And we have no interest in them, and never have had any.

Mr. PIEZ. Except to construct this housing?

Mr. BRITTAIN. Yes.

Mr. PIEZ. Did you contemplate building any houses when you took the contract? Of course, at that time there was no question of having the Government construct any houses.

Mr. BRITTAIN. Yes.

Mr. PIEZ. What made you locate it so far away?

Mr. BRITTAIN. The contract reads "adequate transportation." They had at that time two boats, and had purchased another.

Mr. PIEZ. What did you pay for the property? Did you get it free?

Mr. BRITTAIN. No, sir.

Mr. PIEZ. Did you get it at a reduced price, because they were——

Mr. BRITTAIN (interposing). Yes, sir; at a very much lower pri For instance, the land adjoining us was valued at $200 or $300 acre; and we have 175 acres, and it cost us about $50,000.

Mr. PIEZ. The situation there is similar to that at Wilmington. you consider it from the standpoint of ship production alone, th are certainly in need of housing. There was a rumor, which Mr. Hu ley brought back from Savannah when he went down there, th there was some connection between the land company and the shi building company; and we hesitated for a long time to give co sideration, even, to their plea for housing. If the emergency h been continued and ships had been needed, it would have been abs lutely necessary to build ships there in order to develop the capaci of that yard. It is a question to-day of whether the commitment w made does not obligate us to spend at least a part of the money w agreed to spend. That is the situation.

Senator LENROOT. I would like to ask Mr. Piez on what theory assumes that there is an obligation, when there was no obligation a sumed at the time this contract was made?

Mr. PIEZ. Well, there was a subsequent obligation, and these ge tlemen went to expense of their own.

Mr. BRITTAIN. We originally had a contract for 20 composite ship After working on those ships for some time the Fleet Corporati decided that they wanted us to construct at that yard 7,500-ton tankers. For some little time we were in negotiation with them a were unwilling to undertake the construction of oil tankers by reas of our labor situation there. And in taking this contract, assuranc were given us—at that time the housing committee had been formed that we would get assistance for housing. The commitment was ma then and subsequently by Mr. Taylor, and even after the armisti was signed we paid for the additional land, and that commitment w made with the understanding that we would go on the obligation f the return of the money to be advanced.

Mr. PIEZ. How much was your original contract reduced?

Mr. BRITTAIN. From 20 composite ships to 10.

Mr. PIEZ. That was a very undesirable type of ship, and I thi the change to the steel ship was made in part consideration of th relinquishing any claims growing out of the cancellation of any co posite ships. We were very much in need of tankers, too, and a still, and I think it was simply on account of this——

Senator LENROOT (interposing). What is your percentage of ove head?

Mr. BRITTAIN. Around 45 per cent.

Senator LENROOT. What does that include?

Mr. BRITTAIN. The usual items of overhead—insurance, superi tendence and indirect labor; that is, labor that can not properly charged to any one ship in the yard.

Mr. PIEZ. For instance, that is not charged to the ship accou but is charged to the yard account.

Senator LENROOT. That is 45 per cent of the direct labor cost?

Mr. PIEZ. Yes; 45 per cent.

Mr. BRITTAIN. Yes.

Senator LENROOT. Can you give an approximate idea as to lab cost on a ship?

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Mr. PIEZ. Your labor cost on a ship of that size would probably run about $600,000, would it not—on oil tankers of 7,500 tons each?

Mr. BRITTAIN. Yes; about $600,000.

Mr. PIEZ. And your overhead would probably run about $250,000 to $300,000?

Mr. BRITTAIN. Yes.

Senator LENROOT. Your overhead, then, of course, was less than it is at Hog Island?

Mr. PIEZ. Well, these people do more work. At Hog Island they have most of the work done outside and store it in the yard. There is, therefore, a smaller percentage of direct labor. In the Terry & Brittain yard they do more fabricating in the yard and have, therefore, a larger amount of direct labor. You can not tell; it depends largely upon the character of work they do. Hog Island has now run down to about $300,000, and ultimately will probably run down to about $215,000.

Senator LENROOT. Suppose you take the amount of labor over a period of time, to what extent would that increase cost by way of overhead?

Mr. BRITTAIN. It would be a considerable increase, although I could not say the percentage of overhead. The turnover in a yard is very expensive, and where the yard is located as our yard is, it is more. We employ a man and he gets dissatisfied and he leaves and we must replace him.

Senator LENROOT. But your turnover would not be as great if you were running one-half capacity to save running to full capacity?

Mr. BRITTAIN. Proportionately, I should say not, because we have facilities for a certain number there now.

The CHAIRMAN. How many men have you employed there now?

Mr. BRITTAIN. Something over 2,000.

Mr. PIEZ. How many ways have you?

Mr. BRITTAIN. Six.

Mr. PIEZ. You are not running six?

Mr. BRITTAIN. No; four.

The CHAIRMAN. How many more could you economically use?

Mr. BRITTAIN. More labor?

The CHAIRMAN. Yes.

Mr. BRITTAIN. We should have an additional 1,000 or 1,500 men.

The CHAIRMAN. What do these houses cost?

Mr. BRITTAIN. The type of houses we have submitted to the housing division average between $400 and $500 per room—nearer $450, including certain overhead. The overhead in our operations is very small. In the original investment there, for instance, we have already built and paid for the trunk sewer and the installation of our lighting connection, which would make the cost per room of overhead smaller than ordinarily. The five-room houses, for instance, that we built before, I think we built them very inexpensively; they averaged a little less than $400 a room, but the cost now will be increased over that figure, to a certain extent. We built a large number of smaller houses for negroes, half of which are now being occupied by our white help because we have been holding out the hope that we would have the other houses there and

move part of the white people in them; and then we were getting large percentage of negro labor.

The CHAIRMAN. Have the papers all been finished up and the titl passed?

Mr. BRITTAIN. Yes, sir; title has passed, and we have executed th mortgage, and even forwarded the money for the revenue stamps.

The CHAIRMAN. And the agreement is that you were to guarante 70 per cent?

Mr. BRITTAIN. Not less than 70 per cent, but have an appraise valuation; it can not be less than 70 per cent, and it may be 9 per cent.

Mr. PIEZ. What security did you give—the personal indorsemen of yourself and Mr. Terry?

Mr. BRITAIN. The personal indorsement of myself and Mr. Terry and the security of the corporation.

Mr. PIEZ. You have not very much capital in your corporation have you?

Mr. BRITTAIN. No, sir.

Mr. PIEZ. What equity have you in your yard?

Mr. BRITTAIN. I have about $100,000 or $150,000 in the yard itself

Senator LENROOT. Was your capital advanced by the Fleet Cor poration for the yard?

Mr. BRITTAIN. Yes, sir.

Senator LENROOT. How much?

Mr. BRITTAIN. We were originally told that we could spend $4,000,000 or $5,000,000 on the yard. We had a 10-way yard. That was under the first contract. We actually spent on the first contract $900,000 and built 10 ways for the composite ships. Now, we have built really two yards, because a composite ship is a wooden ship; that is, we had to provide for a wooden-ship equipment, and also for a steel-ship equipment. Now, when we relinquished the building of 10 composite ships to take on the building of the tankers we were authorized to spend something over $1,000,000; and that was subsequently cut down to $600,000; and out of that we have spent more than half.

Mr. PIEZ. That was in the nature of an advance payment?

Mr. BRITTAIN. Yes; it is all in the nature of an advance payment.

Senator LENROOT. Is your yard completed with eight ways?

Mr. BRITTAIN. It is completed with eight ways; yes, sir.

Senator LENROOT. And they are all now for steel ships?

Mr. BRITTAIN. We will use only four of those ways for steel ships. But it was just an extension for the ways, because we built originally very strong ways, and it just meant an extension from 296 feet to 405 feet.

Senator LENROOT. And you have done that on all eight?

Mr. BRITTAIN. No, sir; on six. We have not finished six. I think perhaps four have been completed. But we have increased the fabricating capacity of this yard. We fabricate all of our material in the yard, and there is economical handling, and the fabricating plant is located directly behind and very convenient to the ways. So that our handling charge is very small, and our fabricating charge is very small; and certainly the construction of the fabricating shop has been exceedingly small for the capacity.

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Senator LENROOT. What I mean is, what the entire cost of the yard has been to you?

Mr. BRITTAIN. The entire cost of the yard has been less than $1,500,000.

Senator LENROOT. For six complete steel ways and two wooden ways?

Mr. BRITTAIN. I would say four steel ways, and a preparation made for six.

Senator LENROOT. And what size are you building?

Mr. BRITTAIN. Seven thousand five hundred tons.

Senator LENROOT. So you are really building at less cost than the Wilmington yard?

Mr. PIEZ. This is not the same type of yard; this is a conversion of an old wooden-ship yard. These people had one of the first contracts that Gen. Goethals let; they had a contract covering 10 ships.

Mr. BRITTAIN. Twenty.

Senator LENROOT. Twenty composite ships?

Mr. BRITTAIN. Yes, sir; 20 composite ships.

Mr. PIEZ. You say you were authorized to spend $10,000,000 for that?

Mr. BRITTAIN. About $10,000,000.

Mr. PIEZ. You were not authorized to spend $10,000,000 for that.

Mr. BRITTAIN. I will point out to you that, at the outset, Gen. Goethals wanted us to build steel ships, and he said, "It is economical to enlarge these yards now." In our yard, while it is a wooden yard, and the construction is cheap; yet we originally built for the construction of steel ships, and we went there with the idea of building steel ships. He are steel constructors, and not wooden shipbuilders.

And Gen. Goethals asked us to undertake the building of these original ships, with the idea that later on he wanted us to build the steel ships. We are steel constructors, and not wooden shipbuilders. At that time we had a plant on the Newark Meadows, N. J., and a location there for the construction of steel ships, which was subsequently abandoned, because we did not want to divide the operations; we did not want to build one type down there and have to duplicate the facilities at Newark.

And that is why we built so many ways. We would not ordinarily have built ten ways, but our plant is so laid out that the steel ways are located adjacent to the fabricating plant, so that we could very economically build the steel ships and finish up the wooden ships—our composite ships being up at the other end of the yard, and the last wooden ship having left the ways, they would be followed by the steel ships.

Mr. PIEZ. Have you done all of your dredging there?

Mr. BRITTAIN. Yes, sir.

Senator LENROOT. How much more would it cost to build a 9,000-ton ship there, like those at Wilmington?

Mr. BRITTAIN. These are oil tankers.

Mr. LENROOT. I am not speaking of the ships now; I am speaking of the cost of the ways.

Mr. BRITTAIN. I do not know.

Senator LENROOT. Well, you are building these ways at a cost of, approximately, $250,000 per way?

Mr. PIEZ. No; the cost is $1,600,000, and he has four ways. Are you sure you have not spent more than that?

Mr. BRITTAIN. I have not. I might add that, by reason of the formation at Savannah, our ways can be built, and have been built very much cheaper than ordinary ways. For instance, at this big sugar refinery down there they have an enormous smokestack, put right down on the ground. We did not have to do expensive piling. The formation there is one of the best formations that I have seen for strength, and we have had exhaustive tests made of this formation, and in all of our ways we have not had any settlement at all.

Senator LENROOT. So that you are enabled to build very cheap ways at that point?

Mr. BRITTAIN. Yes.

Senator LENROOT. That is what I wanted to bring out. It was said that Wilmington was the cheapest yard.

Mr. PIEZ. That was referring to Government yards.

Senator LENROOT. But I think it is fair to make the comparison, whether it was a Government or a private yard.

Mr. PIEZ. But this yard was begun fully a year before the Wilmington yard, when wages had not gone so high as they had at the time the Wilmington yard was built. The Wilmington yard was built at the period of very highest prices.

Senator LENROOT. When was your yard started?

Mr. PIEZ. It was started in May, 1917.

Senator LENROOT. When was it completed?

Mr. BRITTAIN. The latter part of that year, except for the fabricating plant, which was made necessary by the larger steel vessels, and that was completed the latter part of last year. There has been a great deal of difference in our labor in that section. There we started out by not having to pay the Macy board wage scale. We could get carpenters and laborers down there very much cheaper than is possible at present.

Senator LENROOT. Of course, I appreciate that; but I understood from your statement that that was a very much more economical location than other locations—from what you said about the soil conditions—which is a very important element.

Mr. BRITTAIN. Yes, sir; we considered that it in the location; and I am sure we have in Savannah as economically constructed a yard as there is in the country.

Senator LENROOT. I should judge so.

Mr. BRITTAIN. Mr. Terry is an experienced builder, of 35 or 40 years' standing, and he has withdrawn from other connections and has given his personal attention to the work and been down there on the job, and we have scanned every expenditure there and every dollar that has been spent has been spent for a purpose and under our personal supervision, and we have a cheaply-constructed yard for economical construction of ships. We have a fabricating capacity there of 3,500 tons of steel a month, all laid out, so that we can efficiently handle it.

Mr. PIEZ. It is just a little too remote from the center of population for the labor.

Mr. BRITTAIN. Yes, sir.

Senator LENROOT. What is the size of Savannah?

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Mr. BRITTAIN. About 70,000; they claim about 75,000.

Senator LENROOT. What is the nature of your contract with the Government? Is it a cost-fee contract?

Mr. BRITTAIN. No, sir.

Senator LENROOT. A lump-sum contract?

Mr. BRITTAIN. A lump-sum contract, with the labor protection.

Senator LENROOT. Yes; I understand the labor protection, and as to the increase in the material cost at a price fixed by the Government. So that the cost to the Government would not be increased by delay of production?

Mr. BRITTAIN. It would increase in this way, that the Government pays all over and above a certain wage scale, and if it costs more for labor to construct it, it would cost the Government 40 per cent of that additional cost.

Senator LENROOT. Is that not over and above a certain wage scale—for instance, $4 a day? Now, if you take a less number of men to complete that ship and get them at that wage scale it does not cost the Government any more, does it?

Mr. BRITTAIN. No, sir; but our location makes the turnover very much more expensive to us.

Senator LENROOT. It might to you, but would it to the Government?

Mr. BRITTAIN. Yes.

Mr. PIEZ. These gentlemen have $100,000 of their own in the yard. We have advanced money for yard construction. They are, perhaps, $3,000,000 above the contract price on 10 composite ships. There will have to be some adjustment made. But if the loss is above $100,000 it is very likely that we will have to stand the loss rather than they, if we are going to build the ships.

And that is the case with most of the yards. There is not enough financial strength behind these companies to enable them to stand the loss that is suffered. That is the condition under nearly every contract.

But if they have put in $100,000, as in this case, they have done pretty well, as compared with some other yards. But it was presumed that there would be profit in the contract they got, so that they could pay out of that profit the cost of constructing the yard.

But that has been true in very few cases; so that, in many cases, if the Government was going to drive these ships to completion it had to stand the loss. So that these contracts might as well be cost-plus contracts, so far as the interest of the Government is concerned. They stand to lose whatever capital they have; but we must lose the rest.

Senator LENROOT. Well, they could really amortize the cost of the plant with the profits on the ships. I understood you to say that the contract was on the basis that they could pay out of the profits on the ships the cost of the yard?

Mr. PIEZ. Yes. But they can not do that where the cost is more than the contract price, and there will be no profit. That was true not only with the wooden ship but with the concrete ship. The composite ships are the most expensive.

Mr. BRITTAIN. We did not seek the building of ships. We had a letter from Gen. Goethals, by reason of the firm's reputation as

builders, requesting us to come to Washington. We came here and on the 15th day of April Gen. Goethals told us he had to get some shipbuilders, and asked us to undertake the building of ships.

We said, "We are not shipbuilders." But he said, "You are the type of builders we want. Now, go South and find a location and we will contract with you for ships. We have no plans; we do not know the type of ships we want you to build; but we want you to get a location." He at that time, and several times since, stated to us that we would not make an investment in the shipbuilding business; it was so understood when we went into it that we were not to do the financing.

Senator LENROOT. I do not want you to understand that I am criticising your company in any way.

Mr. BRITTAIN. Well, if it became necessary to do that, and we were seeking contracts, we could have put in a larger investment. We already had large contracts with the Public Service Commission of New York. And we said to Gen. Goethals that if we undertook to make contracts for these vessels, we would not go into it if it meant a large plant investment, because we did not know how long the war would last.

But we did go into it on the distinct understanding that we would not employ our capital. We did feel, however, that the capital that the Government was putting in was, in a sense, ours, because we would have to replace it and return it; and therefore we built as economically as we could; and this advance from the Government is to come out of the price of the vessel. That is true of the subsequent advance of $600,000 on the tankers also.

Mr. PIEZ. I am not criticising this company, but I was trying to give a picture of all of these things; that these gentlemen were practically invited to go into the shipbuilding business; and it was presumed they could pay for the betterments out of the price of the ships.

Senator LENROOT. Yes; I understand.

Mr. PIEZ. But the Government undertook at that time to set the prices; and we are having extreme difficulty in finding a just and equitable way of adjusting these contracts, which involve these contractors in very heavy losses. The composite ship, for instance, was contracted for for less than $500,000. I think the cost will be considerably over $900,000. You can not justify the difference because of any change in design or any increase in the wage cost.

Mr. BRITTAIN. And yet that was set up by Gen. Goethals at the time—the price.

Mr. PIEZ. And it is difficult for these gentlemen to complete the ships for $9,000,000, when the contract was for $5,000,000.

Senator LENROOT. The same gentlemen must have this contract as those who made the one at Hog Island. [Laughter.]

Mr. PIEZ. I want to bring out this very fact, that we are finding extreme difficulty in finding the road of justice in adjusting these contracts. We were told that was the proper price, and accepted it. It was not the proper price. And you might say, "If you were financially strong you were not justified in entering into the contract." But these gentlemen had no knowledge of the shipbuilding business. They accepted the Government's statement as based on knowledge

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and experience; and they went ahead and offered their facilities, not because they needed to, but because they were asked to. Now, where is the line?

And that is the case, not as to one contract, but it is typical of the contracts for wooden ships.

(Thereupon there was an informal discussion which the reporter was directed not to report, after which the following proceedings were had:)

The CHAIRMAN. You spoke of the steering-gear trouble on that ship. Where does that trouble come from; does it come from your work as a shipbuilder, Mr. Brittain?

Mr. PIEZ. No; from the Emergency Fleet Corporation design. [Laughter.]

The CHAIRMAN. Has it been corrected now?

Mr. PIEZ. It is being corrected. And I have just had a wire this morning that two of our vessels have been accepted by the American Bureau of Shipping. The balance of the construction work has been in accordance with the specifications, and, of course, they can not send out a vessel if they have difficulty with the steering gear. They might send her out in an emergency; but as the emergency does not now exist the bureau, as well as the Fleet Corporation, insists that it be a perfect vessel, in so far as it can be made so; and that necessitated the changing of this steering gear, which is a difficult process, because it is constructed for one type of vessel.

The CHAIRMAN. Do you want to ask anything about the housing question, Senator Lenroot?

Senator LENROOT. Not on the housing question.

The CHAIRMAN. Do you want to say anything more, Mr. Piez?

Mr. PIEZ. With regard to that New York World article, I can read the answer to that.

The CHAIRMAN. There is no need to read it; it can be inserted in the record.

Mr. PIEZ. I think it is fairly complete.

(The statement referred to is printed in full, with the statements in response to the resolution of Senator Nelson, adopted by the committee January 2, 1919.)

Mr. PIEZ (continuing). Senator Jones wanted to ask me something about the labor situation in the Northwest. I would like to clean up all questions to-day, because it is a little difficult to stay down here and run the force at Philadelphia at the same time. But, of course, I am subject to further call, and am always at the disposal of the committee.

The CHAIRMAN. I have sent for Senator Jones, who has left the committee room.

Senator LENROOT. Should not Senator Nelson also be given an opportunity to question Mr. Piez?

The CHAIRMAN. I suggest that we print the record of this hearing and we may have further questions to ask Mr. Piez, which he can answer by letter, or perhaps we may desire to have him appear personally.

Senator LENROOT. I would like further opportunity to examine the papers he has submitted in answer to the Nelson resolution before he is finally excused.

The CHAIRMAN. We can not very well go into this until we can have it printed and examine it.

Mr. PIEZ. I will be very glad to appear again at the call of the committee.

The CHAIRMAN. Do you know what Senator Jones wanted to inquire about?

Mr. PIEZ. All the men in the Puget Sound district have gone on strike.

The CHAIRMAN. Suppose you tell the committee about it, in the absence of Senator Jones.

Mr. PIEZ. I would like to answer questions about it.

The CHAIRMAN. If you have any information about what caused the strike you might give it to us.

Mr. PIEZ. The Macy Board agreement provides for a readjustment of the wage rate at the end of the six months' period. The six months' period expired August 1. The wage rate paid at that time on the Pacific coast was 72¼ cents per hour. The men applied for $1 per hour. They claimed that the increased cost of living justified that demand.

The Macy Board took the matter up. That application was made on behalf of all of the men in both eastern, western, and lake yards.

The Macy Board, after a very thorough investigation of the increased cost of living—I may say parenthetically that the increased cost of living was the Macy agreement for the advance in the rates—decided that the increased cost of living justified an advance to 80 cents. That decision was handed down, I think, in September and became retroactive for the west coast as of August 1.

The men appealed from the Macy Board's decision, and under the processes that the agreement provides a board of appeal of six was organized, three representing the American Federation of Labor, three representing the Emergency Fleet Corporation and the Navy jointly.

That committee failed to reach a decision, and so the decision as it is to-day stands by the Macy Board's decision in September.

Mr. Taylor, who represented the American Federation of Labor, and who is president of the Metal Trades Council, the union organization in Seattle, asked me, after the sessions of the board of appeal, what action I would take, or the Emergency Fleet Corporation would take, in case he would apply to make a union agreement with the individual shipyards, and I told him that in all probability the Macy Board would cease its existence on the expiration of the agreement, which was March 31; that thereafter the entire control of the wage situation would rest between the men and their employers; that I had absolutely no objection to his entering into an agreement with the individual yards if he so desired, but that the Emergency Fleet Corporation, or the Government, would not compensate the yards for any increases they might grant to the men over and above the rates granted by the Macy Board.

Mr. Taylor went back to Seattle and stated to his men, as I understand, that if it had not been for my interference the board would have decided in their favor. That was unfair, because I appeared before the board at the request of the Emergency Fleet Corporation, and, of course, if the men appeared, the Emergency Fleet Corpora-

tion and the Government had a right to appear, because they were parties in interest, and I simply made a very formal statement there and called their attention to the fact that the Government felt that it was unwise at this time—this was since the armistice—in the face of a declining market and a declining need for ships, to make any such advances as that; that we could not justify it; that it would probably increase the cost of shipping, so that we would have a severe and material cargo write-off; that there was absolutely no justification on the ground of cost of living for such an increase; and that we strongly opposed it.

The men have very foolishly followed some unwise leaders and have gone out. We will probably stop operations in the yards and make no attempt to resume them. I do not see that we can do anything else. We have been bound by the requirements and provisions of the agreement that they have been operating under for the past 18 months; and they were not justified in any respect in refusing to work, and I do not think we should take any steps to bring them back. I think the offer should come from them.

Senator LENROOT. So that work would just stop at this yard?

Mr. PIEZ. Yes; they have gone out. We have not shut them out.

The CHAIRMAN. Well, I presume that is all we can get on the subject.

We will have the record of this hearing printed, and then, if we want to question your further, Mr. Piez, we can call you.

(The following telegram, received by the chairman subsequent to this hearing, was directed by him to be inserted in the record at this point:)

SAN FRANCISCO, CAL., *February 1, 1919.*

Hon. DUNCAN U. FLETCHER,
*Chairman Commerce Committee, United States Senate,*
*Washington, D. C.:*

Emergency Fleet Corporation a private company organized under section 11 of act September 7, 1916, creating Shipping Board. Section 11 specifically authorizes corporation to construct vessels, necessarily authorizing purchase of land for this purpose. Land owned by Emergency Fleet Corporation is an American shipyard referred to in section 5. Hog Island could have been purchased directly with part of $50,000,000 avalable under act September 7, 1916. No specific commitment of $50,000,000 which could not have been transferred to funds voted June 15, 1917, and left enough of $50,000,000 to pay for yard site. The opinion of Attorney General seems to have overlooked these considerations. Please file this wire in record of hearings.

WILLIAM DENMAN.

(Thereupon, at 1.30 o'clock p. m., the committee adjourned, to meet subject to the call of the chairman.)

# NITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION

## HEARING

BEFORE THE

## COMMITTEE ON COMMERCE
## UNITED STATES SENATE

SIXTY-FIFTH CONGRESS

THIRD SESSION

PURSUANT TO

## S. RES. 170

DIRECTING THE COMMITTEE ON COMMERCE TO INVESTIGATE ALL MATTERS CONNECTED WITH THE BUILDING OF MERCHANT VESSELS UNDER THE DIRECTION OF THE UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION AND REPORT ITS FINDINGS TO THE SENATE, TOGETHER WITH ITS RECOMMENDATIONS THEREON

TESTIMONY OF

MR. MATTHEW C. BRUSH

PRESIDENT OF THE AMERICAN INTERNATIONAL SHIPBUILDING CORPORATION

Printed for the use of the Committee on Commerce

## PART 8

WASHINGTON
GOVERNMENT PRINTING OFFICE
1919

# UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION

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JANUARY 30, 1919

Printed for the use of the Committee on Commerce

## PART 8

WASHINGTON
GOVERNMENT PRINTING OFFICE
1919

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Mr. BRUSH. I am not a shipbuilder.

The CHAIRMAN. Whom did you succeed at Hog Island?

Mr. BRUSH. I succeeded Mr. Frederick Holbrook.

The CHAIRMAN. When did you go there?

Mr. BRUSH. On December 13, 1918.

The CHAIRMAN. Just state what you found there, and what the conditions are there at the present time, in your own way. I think we will save time if we allow you to go on with your statement, and then we can cross-question you afterwards.

Mr. BRUSH. If I may, Mr. Chairman, I shall be glad to proceed in that way.

I understand that you are anxious to have this done in as short a time as possible, and I will try as well as I can not to waste your time. If I may continue and go through my statement very promptly, I shall be glad to answer any questions, if I can; but I think I can save your time, and the time of the committee as a whole, if I may do that.

Senator VARDAMAN. When did you take charge at Hog Island?

Mr. BRUSH. On December 13, 1918, about seven weeks ago.

In order to give you a picture of Hog Island, I have here a panoramic photograph taken on January 24, 1919; and also one taken on November 29, 1918, and back of that, one showing the situation as it existed on September 20, 1917.

Naturally, I was in very much the same situation, when I went to the property, that I assume you gentlemen are now; I wanted to know what I had, what I had to do there, and what I had to do it with. And at the same time I have been trying to prepare this information for the committee in such a way that it would be of some service, and I hope of some interest to you.

This chart shows the general plan of the Hog Island shipyard as it exists to-day, and it is submitted for the information of the committee. [See illustration, p. 225.]

I have several panoramic photographs to show the committee, Mr. Chairman.

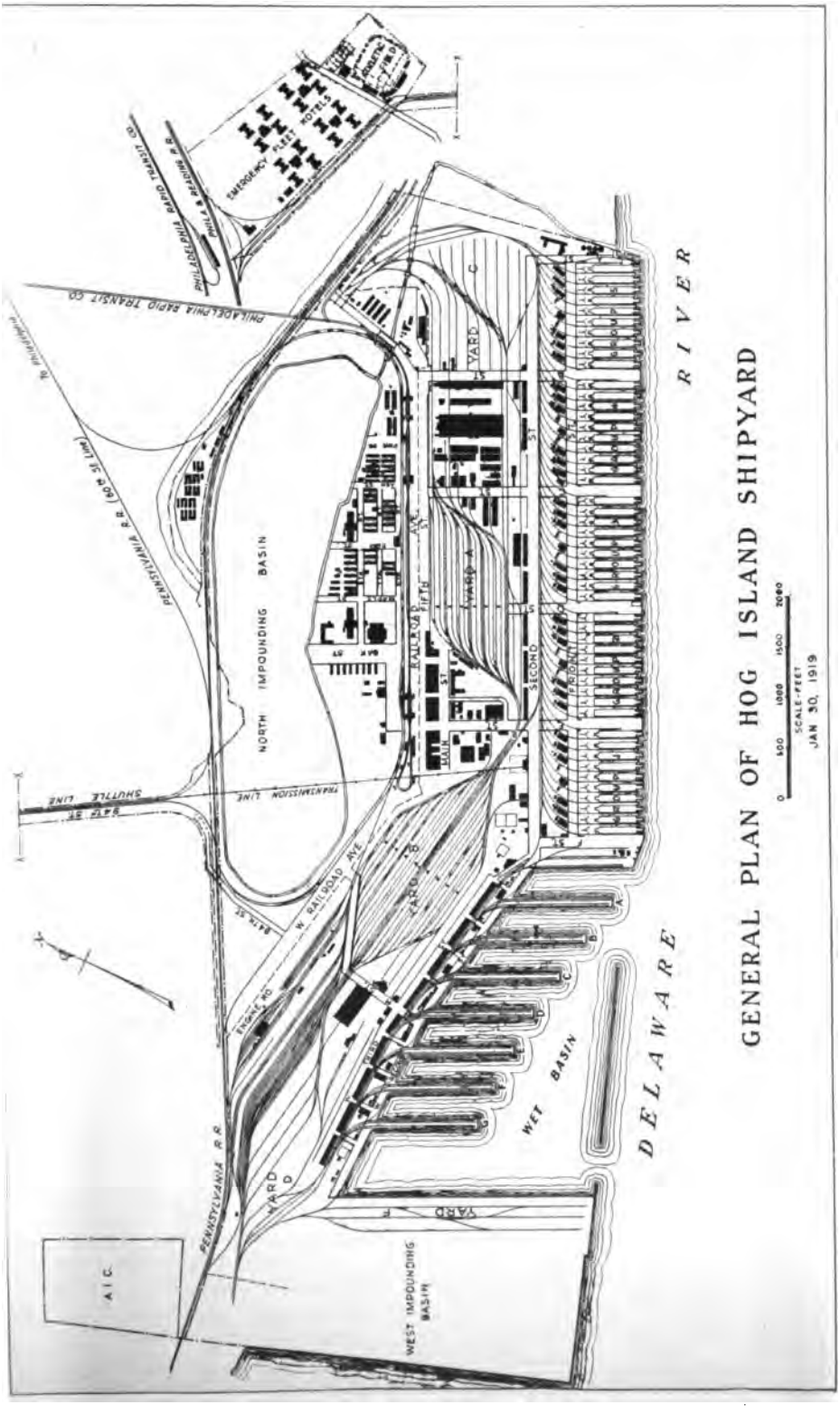
The first one [indicating] shows, on the left, the entire yard, with the 50 ways. On the right it shows the wet basin, with 11 ships in it. This was taken a week ago to-morrow—January 24, 1919. [See frontispiece.]

The panorama now spread out before you was taken on November 29, 1918. This is exactly the same view as the one just shown you, on that date. It shows six ships in the wet basin. The first one, that camouflaged ship, being the *Quistconck*, is the only one that was camouflaged, prior to the signing of the armistice. Otherwise, the picture is the same.

This last panorama [indicating] is a picture of Hog Island as it existed on September 20, 1917 [see frontispiece], this is 491 days previous to a week ago last Friday, January 24, 1919, the date the last photograph was taken. That gives you some conception of the situation, in a pictorial way.

The CHAIRMAN. Where is the wet basin?

Mr. BRUSH. The panoramic photograph shows the wet basin to the right in the pictures of November 29, 1918, and January 24, 1919 [see frontispiece, view No. 6], and this photograph of Septem-


GENERAL PLAN OF HOG ISLAND SHIPYARD
SCALE-FEET
JAN 30, 1919
DELAWARE RIVER
WET BASIN
NORTH IMPOUNDING BASIN
WEST IMPOUNDING BASIN
PENNSYLVANIA R.R.
PHILADELPHIA RAPID TRANSIT CO
EMERGENCY FLEET HOTEL
YARD A
YARD B
YARD C
YARD D
YARD E
YARD F
FIFTH ST
SECOND ST
MAIN ST
W. RAILROAD AVE
ENGINE RD
TRANSMISSION LINE
SHUTTLE LINE
A.I.C.

ber 20, 1917 [see frontispiece, views Nos. 2 and 3], was taken from the water's edge about the center of what is now shipways group No. 3 with the photographer's back to the river. There was, of course, no tower at that time—September 20, 1917.

The view in the upper left-hand corner of the panoramic picture [view No. 1] is the same as the west one-half of the panoramic view of September 20, 1917 [view No. 2]. It was taken on September 27, 1917, and indicates to you the progress that was made in one week's time.

The view in the upper right-hand corner [view No. 4] is the same as the east one-half of the panoramic photograph of September 20, 1917 [view No. 3], and was taken October 3, 1917, showing the progress that was made in two weeks' time.

The views of November 29, 1918, and January 24, 1919 [see frontispiece, views Nos. 5 and 6], were taken from the tower built for that purpose which is immediately north of Pier M.

The CHAIRMAN. Is this looking from the Delaware River?

Mr. BRUSH. No; you are looking east there in that picture.

Senator KIRBY. Was this swamp land at that time?

Mr. BRUSH. Yes, sir; it was largely swamp land then.

Senator VARDAMAN. That picture shows the condition of the island——

Mr. BRUSH (interposing). When the contract was signed.

Senator VARDAMAN. And when the estimate of a cost of $21,000,000 was made?

Mr. BRUSH. Yes, sir.

I felt that the first thing which interested me more than anything else when I got there was, whether we were building ships, and if so, when they would be built. I had read a great deal about the *Quistconck* being towed around from one dock to another, and being put in dry dock; and I would like to tell you gentlemen the actual facts in regard to the *Quistconck*——

Senator JONES (interposing). Let me ask you this question first: I saw in the newspapers a short time ago that the *Tuckahoe* was in a sinking condition, and had to be towed into port.

Mr. BRUSH. The *Tuckahoe* was built in the New York Shipbuilding plant, not in the Hog Island plant. I happen to know something about it, but we had nothing to do with it.

Senator JONES. I thought that was built at Hog Island.

Mr. BRUSH. No, Senator; the *Tuckahoe* was built at Camden, N. J.

The CHAIRMAN. And how many days did that delay her?

Mr. BRUSH. I do not know how many days she was delayed at Halifax—she is the ship that was built in 27 days. I do happen to know something about the situation. She was not towed into Halifax in a leaky condition, as was reported, but steamed there herself. I understand she is now all right and at sea again.

Senator NELSON. Was she a fabricated ship?

Mr. BRUSH. Yes, Senator; she was a fabricated ship.

Senator JONES. Do you know the cause of her leaky condition?

Mr. BRUSH. She was not in a leaky condition. She had trouble with her ash ejector but her hull was in good shape.

The CHAIRMAN. She was launched how long ago—do you know?

Mr. BRUSH. I do not remember when she was launched. Mr. Knight can probably tell you.

Mr. KNIGHT. Last May.

Mr. BRUSH. This model, Mr. Chairman [indicating model of ship on committee table] is the exact counterpart of the 110 ships, which we call our class A ships, for which we have a contract with the Emergency Fleet Corporation to build. [See illustration, p. 255.]

Senator JONES. What is the tonnage of those ships?

Mr. BRUSH. Seven thousand five hundred dead-weight tons, and the *Quistconck* is the exact duplicate of that model. [See illustration, p. 255.]

The keel of the *Quistconck* was laid on February 12, 1918, and she was launched on August 5; she had her dock trial November 3 and her river trial November 7; she was delivered December 3, 1918, and left Hog Island December 10—and she never has sunk, and never has been in a dry dock.

Senator JONES. What is she doing now?

Mr. BRUSH. Before I answer that question, may I read what Admiral Bowles said, and then I will answer that question if you please.

Admiral Bowles stated, in the hearing before this Committee on January 2, 1919, as follows:

> In response to the question asked as to the defects which the *Quistconck* developed after launching and which delayed its final completion, I beg to say that in order to comply with the launching date of the *Quistconck*, arranged sometime in advance, it was necessary to launch the ship before testing oil and water tanks, except so far as related to the skin of the vessel.

Then he goes on and explains what took place.

And in reply to a question addressed to Mr. Piez in that hearing of January 2, as to whether there was any reriveting required in the ship after its launching, Mr. Piez replied, "No," and added:

> There was additional riveting required after the launching because the riveting had not progressed far enough. It was a premature launching, because the riveting had not been carried far enough.

Mr. Piez further stated to your committee in that hearing:

> Ships are carried through to further state of completion now before being launched. We have had no repetition of that first experience.

And in the same hearing, Mr. Piez said:

> We have not had any trouble with the gears and turbines there.

The *Quistconck* proceeded to Norfolk and loaded with a full cargo of coal from Virginia; she left Norfolk January 2, 1919, and went to Cristobal, Panama, and arrived there on January 10, 1919; she unloaded her cargo there, and lay at anchor four or five days, under the orders of the Emergency Fleet Corporation, and then she proceeded from Cristobal to New Orleans, arriving there on January 23, 1919, and she is now at New Orleans, loading for Genoa, Italy; cargo composed of spelter, steel rails, tobacco, and cotton.

Senator KIRBY. Did she make the usual time on the voyages?

Mr. BRUSH. Yes, sir. The ship, when we deliver it, is turned over to the Emergency Fleet Corporation, Operating Division; we receive a receipt for it, and we then have nothing more to do with it.

In this particular case, and for the first few ships that we are delivering, we are making very sure about them, and I, as an engineer, am very much concerned, to have a man of our own on board the ship. As circumstances have worked out in this particular case. we selected a man who had been in charge of the installation of the machinery on the *Quistconck*, from about six weeks after she left the ways until she was accepted by the Emergency Fleet Corpora-

tion. This man was put in charge; he remained on board throughout that work, he remained on board when she was delivered to the Government, he remained on board when she sailed from Norfolk to Cristobal, and from Cristobal to New Orleans. He came back to see me in Philadelphia last night, and due to my being here I had him come to Washington and when he leaves here he is going to return to New Orleans, and go to Genoa. He is in this room now, and I shall be very glad indeed to have him cross-examined by any member of your committee. I have had no conversation with him, except to ask him what he thought of the way the *Quistconck* was working, and he said "Fine." He has been on the ship almost continuously since she has been in the water and I shall be very glad to have him go on the stand and answer any question the committee may ask him.

Senator VARDAMAN. You were not in charge at Hog Island when this premature launching took place, were you?

Mr. BRUSH. No, sir.

Senator VARDAMAN. And you were not in charge at the time of the making of this expenditure of $38,000 which somebody testified was expended in that celebration of that launching?

Mr. BRUSH. No, sir; I was not in charge at that time.

The CHAIRMAN. Is it not a fact that the launching of the ship was directed or controlled by Mr. Schwab, or by the Emergency Fleet Corporation?

Mr. BRUSH. According to the record, Mr. Chairman, the arrangement in regard to the launching was carried out in accordance with the directions of the Fleet Corporation, but was fixed a great many months beforehand and I have been told since I have been there, by Mr. Piez and by Admiral Bowles also, that they believed it was a very wise and expedient thing to do at the time. I personally was not there, and was not even at the launching, Mr. Chairman.

Senator KIRBY. In order that you may not be disturbed by me further while you are speaking from your notes, I wish you would state, when you are talking about these models [indicating models on committee table; see illustrations, pp. 255 and 256] what those ships would cost now, and what they would have cost in the prewar period.

Mr. BRUSH. I can not give you an estimate of what they would have cost in the prewar period. I can give you the present estimated basic cost.

Senator KIRBY. I do not mean to give that now; I mean, in your general discussion.

Senator LENROOT. Before you do that, I wish you would state what rating was given this first ship built at Hog Island.

Mr. BRUSH. The ship itself received the highest rating from Lloyd's and the American Bureau of Shipping. Her equipment was inspected and given the highest rating by the American Bureau of Shipping, of which Commander Taylor is chairman. Lloyd's felt that they could not give the vessel their usual figure for equipment because the welds in a number of the links in her two anchor chains were smaller in diameter than required by Lloyd's rules. So they just did not pass on the equipment. These two anchor chains, as I say, were approved not only by the American Bureau but by the United States steamboat inspectors as well as by the Emergency Fleet Corporation and by Admiral Bowles. They were pronounced satis-

factory by all of them, and if at any time other anchor chains were supplied, Lloyd's would give the figure "1" for the ship and equipment.

There you have the ship [see illustration, p. 255] with 530,000 rivets in it; a ship with 25,000 different pieces in it, and everything approved and pronounced absolutely perfect by Lloyd's and you have a few links in your anchor chains, which are furnished by the Emergency Fleet Corporation to the American International Shipbuilding Corporation, and over which we had absolutely no control, which are delivered to us in the yard, and which we are told by Admiral Bowles to use, which he says are all right, and which the American Bureau of Shipping says are all right—Lloyd's, however, merely said they would let this be sufficient and not pass on the equipment, as they had not tested it nor seen it until it was delivered to the yard.

Senator LENROOT. Did any of your men know that the chains were not all right?

Mr. BRUSH. Yes, sir. We knew that they had been passed by all necessary American boards, but not by British Lloyd's.

Senator LENROOT. Did you protest about it?

Mr. BRUSH. Yes, sir.

Senator LENROOT. Who authorized you to put them on there—Admiral Bowles?

Mr. BRUSH. Yes, sir; and the Emergency Fleet Corporation approved them.

Senator LENROOT. Is the rating "No. 2" that of Lloyd's, or is it that of the Emergency Fleet Corporation?

Mr. BRUSH. It is not rated as No. 2; it is rated at +100A— by Lloyd's, which means that the ship has the highest rating that they give. If they had passed on the equipment they would have inserted the figure "1" after the dash. The average man would not know the difference. All the other ships and the equipment have the highest rating that Lloyd's give any ship, and the highest the American Bureau of Shipping gives, not only on the ship itself but on the entire equipment. Lloyd's only give one class to ocean-going vessels, the highest or none.

Senator LENROOT. At any rate, the reason you did not get the highest rating was not the fault of your corporation, but that of the Emergency Fleet Corporation?

Mr. BRUSH. Yes; if there was fault at all.

Senator JONES. Your company knew that it would reduce the rating of the ships if those links were put in, did it?

Mr. BRUSH. Yes, Senator Jones.

Senator JONES. And you protested about it?

Mr. BRUSH. Yes, sir. As a matter of fact, I do not think it makes any difference. When she arrived at Lewes, Del., on her trial trip at the foot of the Delaware River, Mr. H. C. Higgins, representing the Fleet Corporation, let go the starboard anchor, and backed up, and let go the port anchor, and then tried to pull both anchors up together. I do not believe that a more severe test was ever made, because when the anchors take a grip on the bottom you have got to break your chain, pull up the bottom of the ocean or sink your ship, and these chains held until Mr. Higgins slacked off one chain and took in on the other.

Senator JONES. Well, you did know that Lloyd's required those chains to be perfect, and unless it was done, the ship would not have the rating that it should have, did you not?

Mr. BRUSH. Yes, sir; as to the British rating. The anchor chains were bought, like a great many other things, by the Emergency Fleet Corporation.

Senator KIRBY. Whom did they buy these from?

Mr. BRUSH. I can not answer that offhand.

Senator KIRBY. You do not know who inspected the chains first?

Mr. BRUSH. The American Bureau of Shipping inspected them.

Senator KIRBY. Are they all crooked?

Mr. BRUSH. No; only a few links were unsatisfactory to Lloyd's.

Senator KIRBY. In those two chains there were crooked links and you do not know of any other cases of the kind?

Mr. BRUSH. No, because every other ship that has gone out has received the highest rating that British Lloyd's and the American Bureau give both on the ship and the equipment.

Senator KIRBY. That is all right; I just wanted to know who passed the crooked ones.

The CHAIRMAN. You may proceed.

Mr. BRUSH. There has been so much talk about the *Quistconck* that I think it is only fair for me to make clear to the committee just what the situation was.

That [see illustration, p. 231] is the *Quistconck* just as she was leaving. She is being loaded now at New Orleans for Genoa.

The second ship that was delivered was the *Saccarappa*. The keel of the *Saccarappa* was laid March 26, 1918; she was launched August 24; had her dock trial November 20; her river trial December 22; was delivered December 30, 1918, and left Hog Island December 31, 1918.

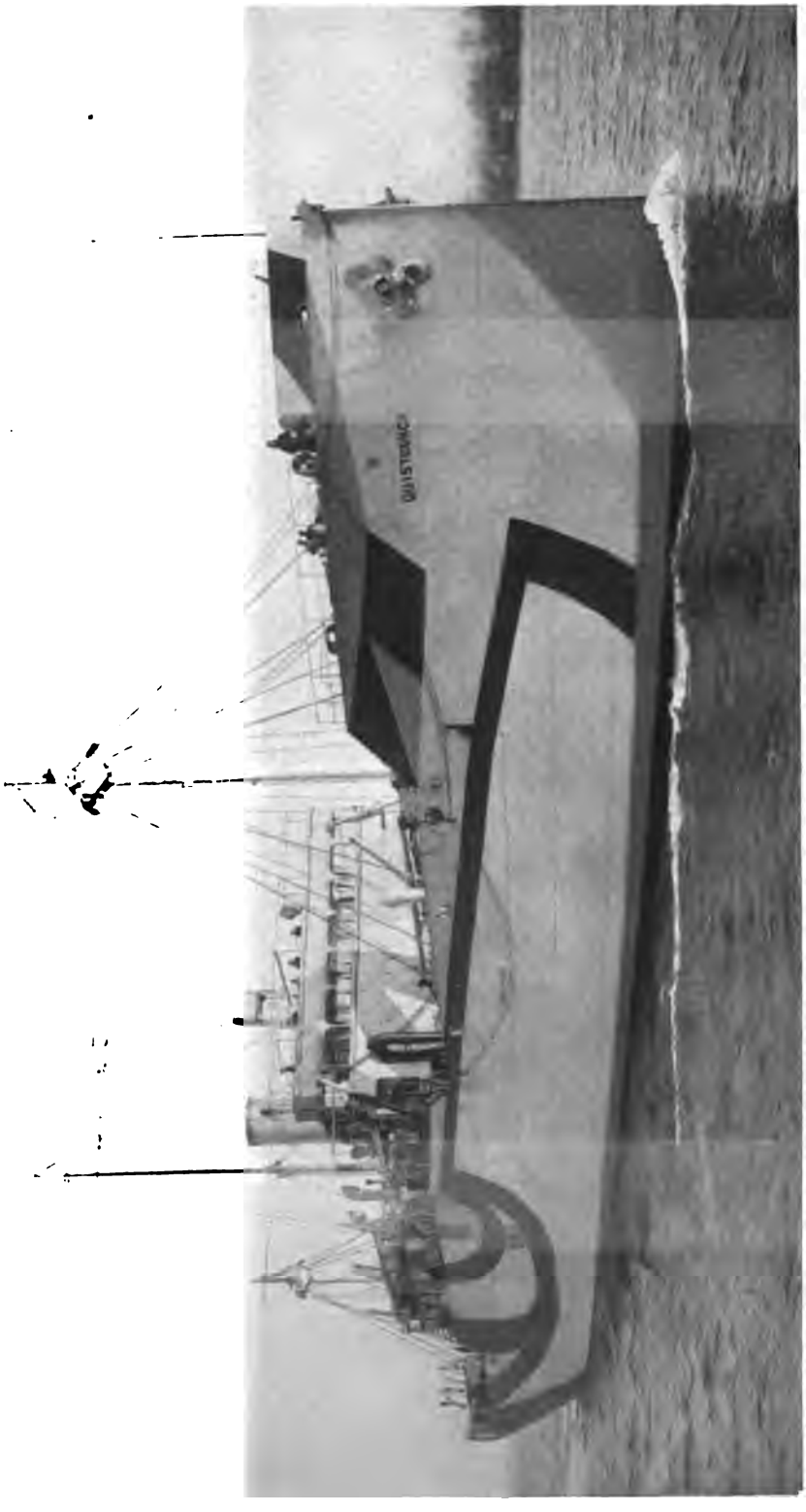
She proceeded to Philadelphia; sailed for New York on January 18, 1919; arrived New York January 20 and loaded there with a cargo of general merchandise for Rio de Janeiro, Brazil. She was manned by a crew of Americans and was assigned to A. H. Bull & Co., 17 Battery Place, New York. [See illustration, p. 232.]

Senator KIRBY. Is she the same type of ship as the *Quistconck?*

Mr. BRUSH. Identically the same type of ship. And to-day I received word that the vessel is at Atlantic Basin, Brooklyn, and is expected to sail sometime next week. The next ship was the *Sac City*, which is the same type of ship. All of these class A ships, for which we have a contract, are identically the same. [See illustration, p. 233.]

The *Sac City*—without taking too much of the time of the committee—I will say that the keel was laid March 11, 1918; she was launched September 30; she had her dock trial December 26; she had her river trial December 29; she was delivered January 4, 1919, and left Hog Island January 6.

On January 23 she sailed for Norfolk, Va., to load coal for Montevideo, Uruguay. She is manned by a Navy overseas crew. She is assigned to the National Shipping Corporation, 25 Broad Street, New York; arrived at Norfolk, Va., January 25; she sailed from Norfolk, Va., January 29. This vessel is just like the *Quistconck*. [See illustration, p. 233.]




HULL 492—"QUISTCONCK"—DELIVERED DECEMBER 3, 1918.

HULL 492—"SAC CITY"—DELIVERED JANUARY 4, 1919.

Senator KIRBY. What is the average speed of these ships loaded?

Mr. BRUSH. The specifications call for 11½ knots.

Senator KIRBY. Are they making that speed?

Mr. BRUSH. Yes, sir.

Senator KIRBY. I mean do they make it on their regular sea voyages?

Mr. BRUSH. We have no information on which we can base a figure on their actual time, loaded, from port to port. On all of our trial trips we have made better than our specification speed. The last ship made as high as 12.65 knots. That was not loaded, however. We have no definite records yet, except in the case of the *Quistconck* between two ports; she went on to Cuba, and then to Panama, and made approximately 11 knots, which was the engineer's observation, but which would not be satisfactory to us, because he may not have taken into account all corrections but it gave us some conception of what the speed is to be.

The next ship was the *Sacandaga*. And the *Sacandaga* has a good record. This is a picture of the *Sacandaga* [see illustration, p. 235]. It was some satisfaction to me to receive these blotters issued by Wessel, Duval & Co., to pass around [see illustration, p. 236], which advertised the *Sacandaga* to the shipping trade.

The *Sacandaga* has a record as follows: The keel was laid March 20, 1918; she was launched October 29, 1918; she had her dock trial January 7, 1919, and her river trial January 12; she was delivered January 22, and left Hog Island January 25, 1919.

She proceeded to New York to load general merchandise for Chile and the west coast of South America, through the Panama Canal, manned by an American crew. She was assigned to Wessel, Duval & Co., 25 Broad Street, New York. She started loading January 27, with general cargo for Chilean and Peruvian ports, mainly, cargo of cement, naphtha, lubricating oil, locomotives, automobiles, and dry goods. She will sail February 3, and on her return trip I am advised she will carry nitrates.

I have a letter here, which I will not take the time of the Committee to read, from our man on board in which he says the manager of the line has gone over the ship very carefully, and has said he hoped he would get some more just like her. I will not take the time of the committee to read it. It merely confirms the fact this also is a real ship.

The last ship, the *Sagauche*, was accepted last night by the Emergency Fleet Corporation [see illustration, p. 237].

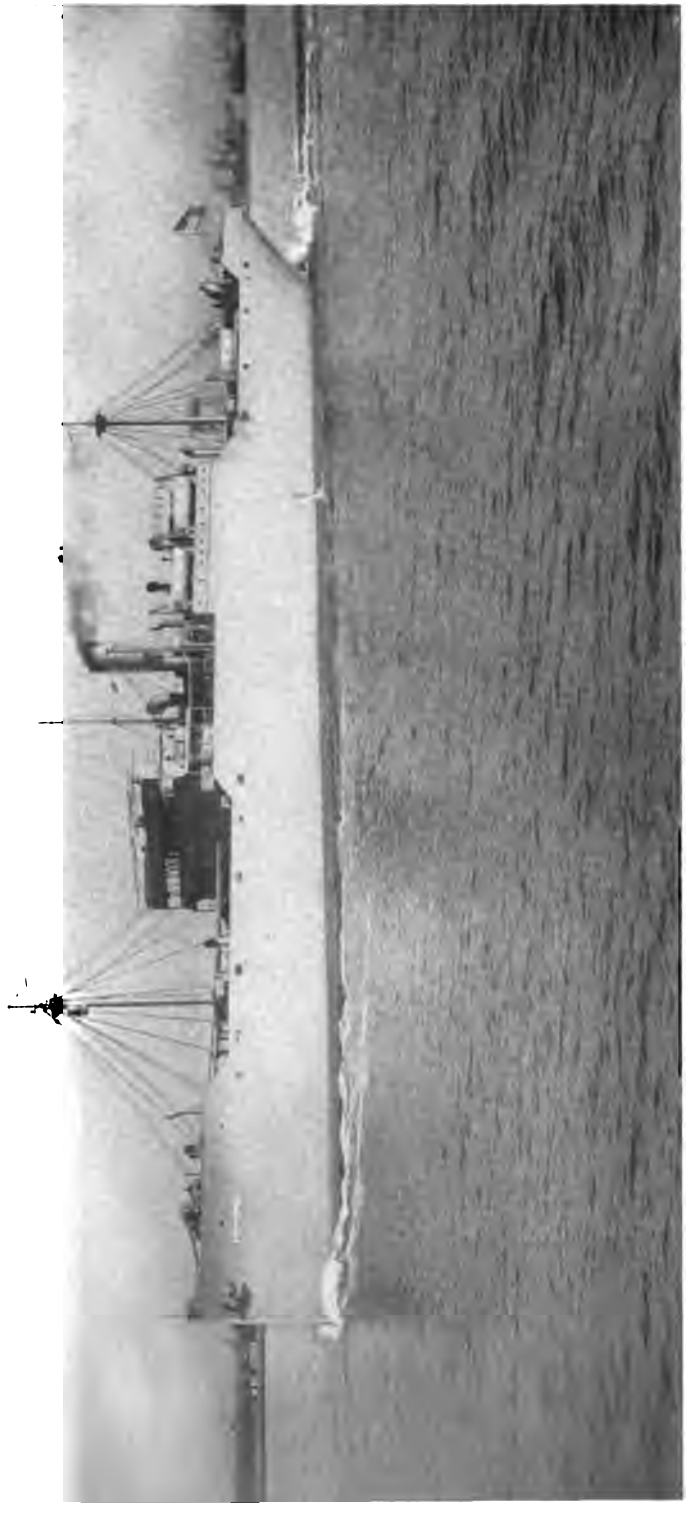
Senator RANSDELL. Is that the fourth or fifth ship?

Mr. BRUSH. That is the fifth ship. We expected to have a dock trial on the sixth ship, the *Sapinero*, to-night [see illustration, page 239], but on account of some work to be done on her engines the dock trial will probably take place Saturday, February 1. The fifth ship, *Sagauche*, was accepted by the Fleet Corporation at 5 o'clock yesterday afternoon, January 29.

Senator RANSDELL. And the sixth ship will be received tonight?

Mr. BRUSH. The sixth ship will probably have a dock trial Saturday, February 1, and we hope under those circumstances to deliver her next Tuesday or Wednesday, February 4 or 5.

Senator JONES. How long has the *Sagauche* been launched?



HULL 494—"SACANDAGA"—DELIVERED JANUARY 22, 1919.

# THE WEST COAST LINE.

## DIRECT SERVICE
TO
## CHILEAN AND PERUVIAN PORTS

THE AMERICAN

100 A1
Steamer

# "SACANDAGA"

FOR
PAYTA
SALAVERRY
CALLAO
ARICA
IQUIQUE
ANTOFAGASTA
VALPARAISO
TALCAHUANO

Will commence to receive Jan. 27th
AT PIER 45, FOOT OF CONOVER STREET, BROOKLYN
To Sail - - - Feb. 3rd

FOR FREIGHT AND SHIPPING PERMITS APPLY TO

## WESSEL, DUVAL & CO.
25-31 BROAD STREET
NEW YORK
TELEPHONE 6280 BROAD

NEW YORK VALPARAISO SANTIAGO CONCEPCION LIMA

Mr. BRUSH. The keel was laid April 8, 1918; she was launched November 22; she had her dock trial January 18, 1919, her river trial January 26; was delivered January 29, 1919, and she is at Hog Island now. I can not give the date she will leave Hog Island, but she is still lying there, entirely out from under our jurisdiction.

We have in the wet basin now 10 ships; we have launched 14 ships; four of them are at sea and in service, and the fifth one was delivered last night; so that we now have in the wet basin 10 ships, or nine besides the one delivered yesterday, January 29, of which you have just seen a picture. I would like to show you these photographs of the ships in the outfitting basin [indicating] very hurriedly. It will show you the stage of completion of the other nine ships there.

That [see illustration, p. 239] is No. 503, *Sapinero.*

The next is No. 507, *Saugerties* [see illustration, p. 240].

This one [see illustration, p. 241] is hull No. 512, *Schodack.*

I will show you the degree of completion in a few minutes.

That [see illustration, p. 242] is No. 501, *Saluda.* We go by hull numbers. I may say that we have no jurisdiction in the selection of those names.

The CHAIRMAN. Those ships are all launched, are they?

Mr. BRUSH. They are all launched and are in the wet basin now being fitted out. The next [see illustration, p. 243] is No. 496, *Sa*[illegible].

The next four photographs are No. 497, *Sagaporack* [see illustration, p. 244]; No. 498, *Prusa* [see illustration, p. 245]; No. 500, *Sah*[illegible] [see illustration, p. 246]; and No. 506, *Saucon* [see illustration, p. 247], in the order named.

Senator NELSON. Do you put the insides into a ship before launching her?

Mr. BRUSH. You put all the boilers in, Senator Nelson, but not the turbines and gears, because it is not wise to put the turbines or the gears in until the ship is in the water; also the shaft if lined up while the ship is on the ways would get out of line. You ought to do everything you possibly can to your ship on the ways before launching her; and we are proceeding on that policy now. There are 10 of those ships in the wet basin. I believe I have shown them all in those photographs.

The CHAIRMAN. You say there are 10 of those?

Mr. BRUSH. There are 10 of them; one of them is the one transferred last night to the Emergency Fleet Corporation.

Senator RANSDELL. Are there 14 in all that have been launched?

Mr. BRUSH. Yes, Senator; 14 in all. There were 10 in the wet basin and 5 delivered, and it now stands 14 launched, 5 delivered, and 9 in the wet basins being fitted out.

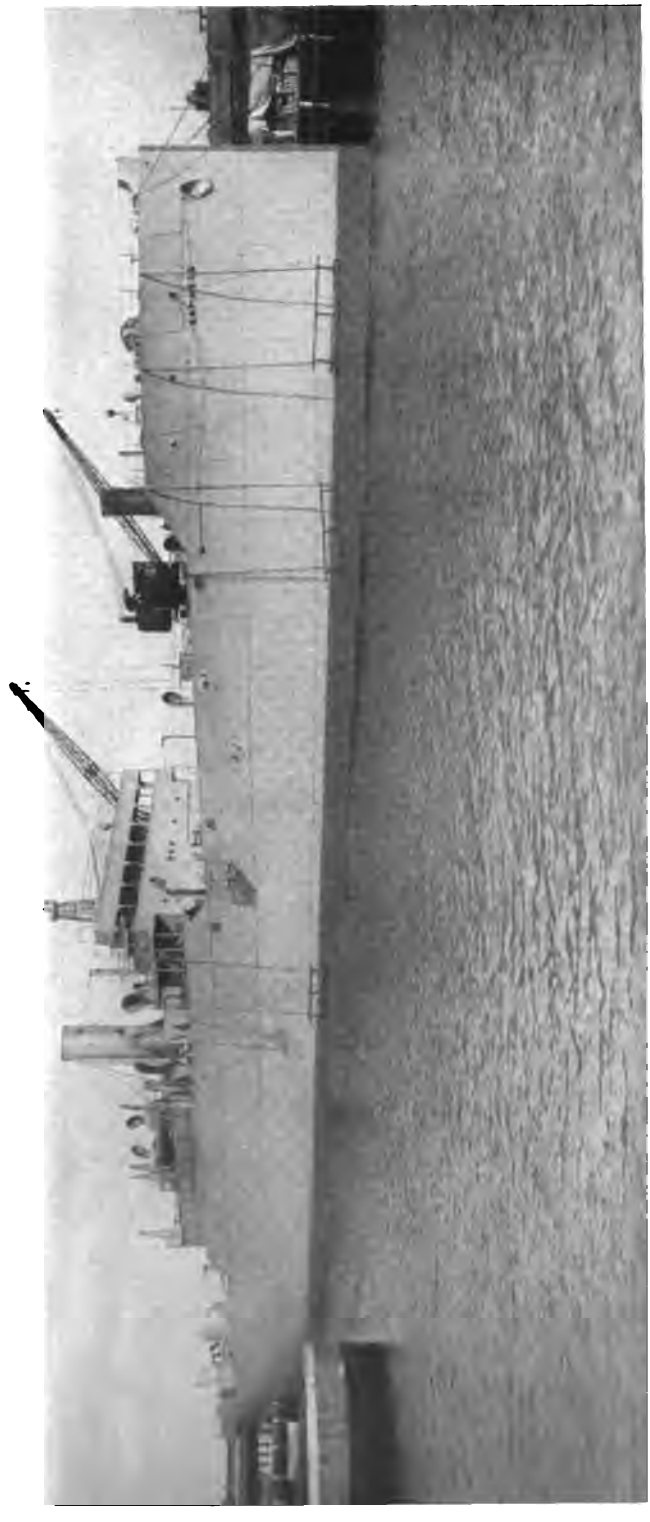
Senator KIRBY. What is the average time of building?

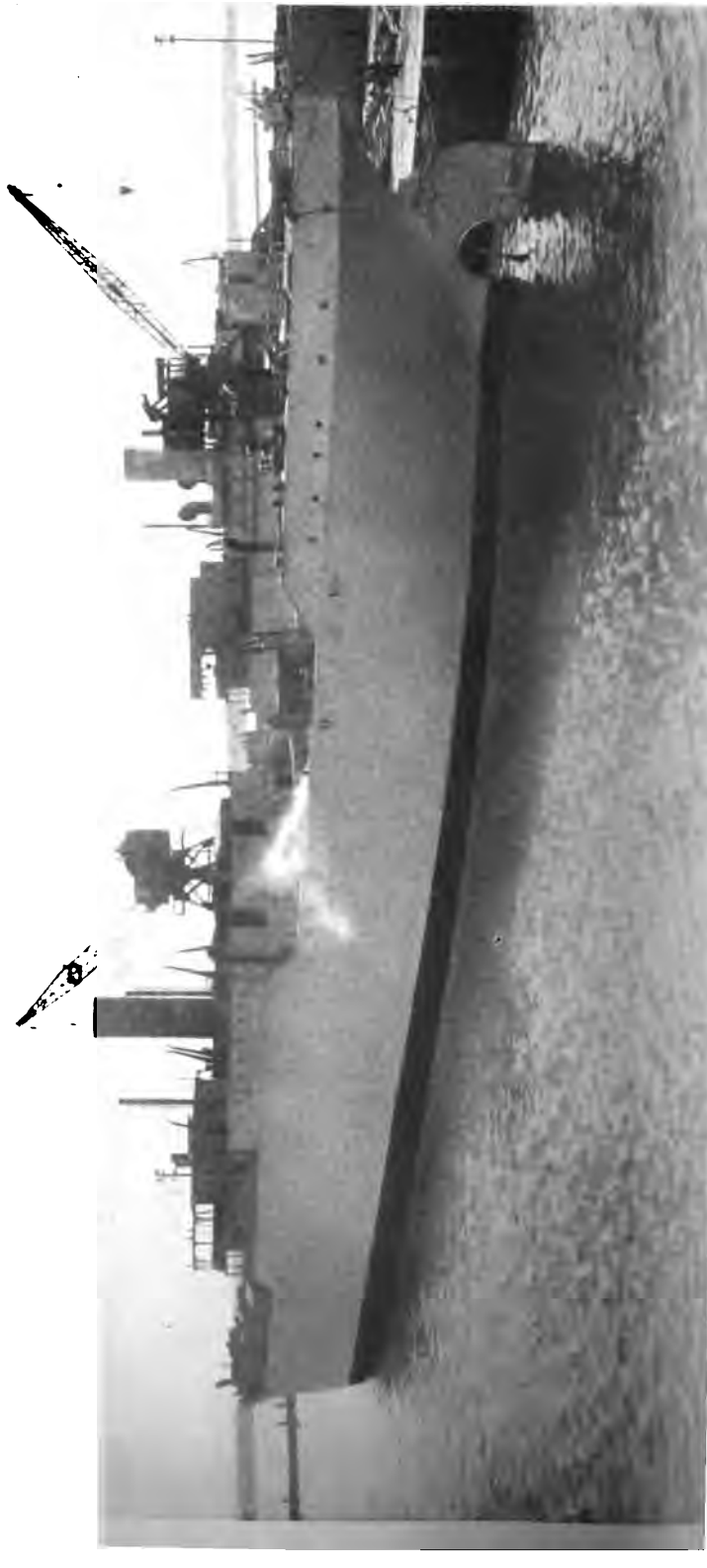
Mr. BRUSH. Later on I will show you a chart that I think will answer that question.

Senator KIRBY. All right.

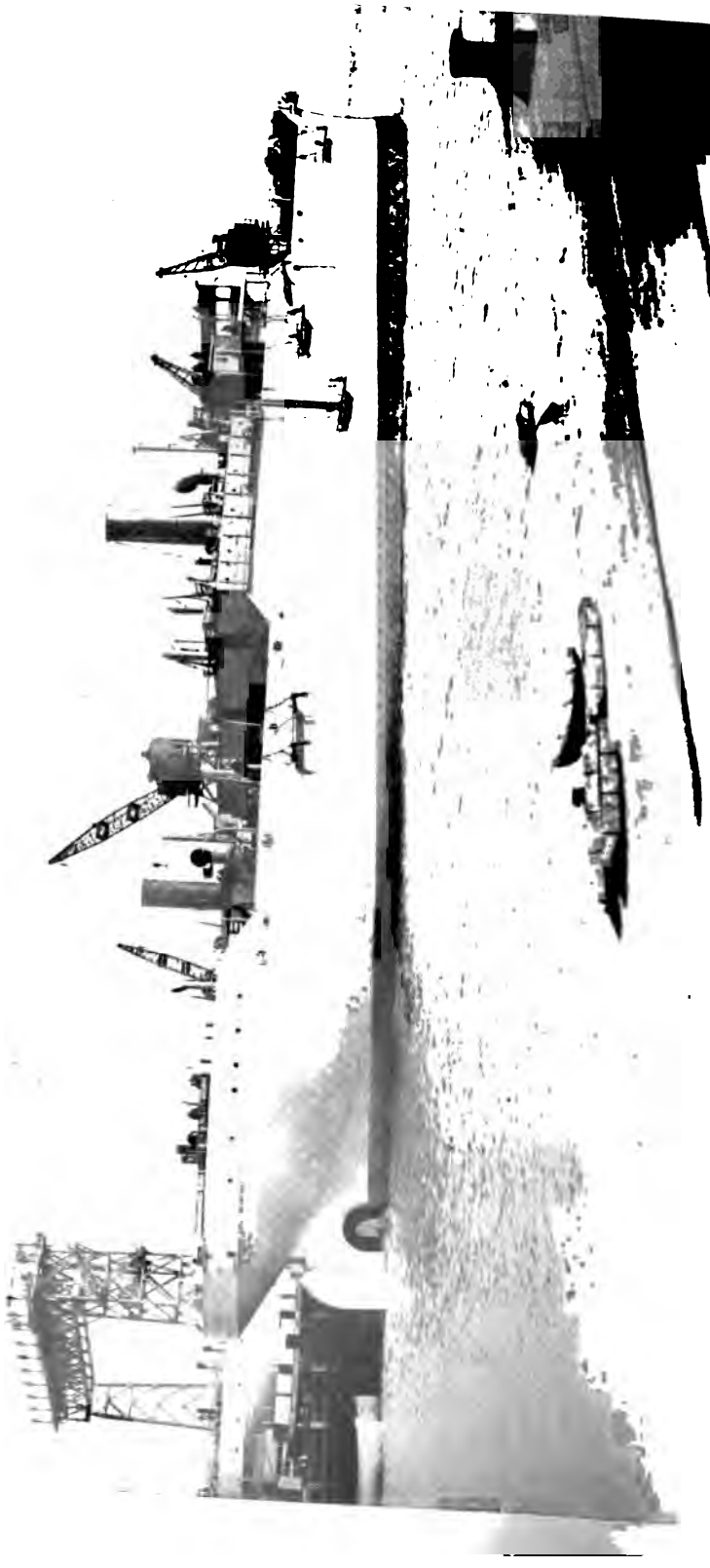
Mr. BRUSH. So far I have shown you the ships at sea; those in service and those in the wet basin.

Now, I will show you the 50 ways and the condition of each ship on all these ways. There is a keel on every way at this moment, and the photograph [see illustration on the first insert between pages 248 and 249] is a picture of each of the first 10 ways which we call our first group; that is our first 10 ways. Way No. 1 is the w





HULL 512—"SCHODACK," PIER A-3—LAUNCHED JANUARY 18, 1919.

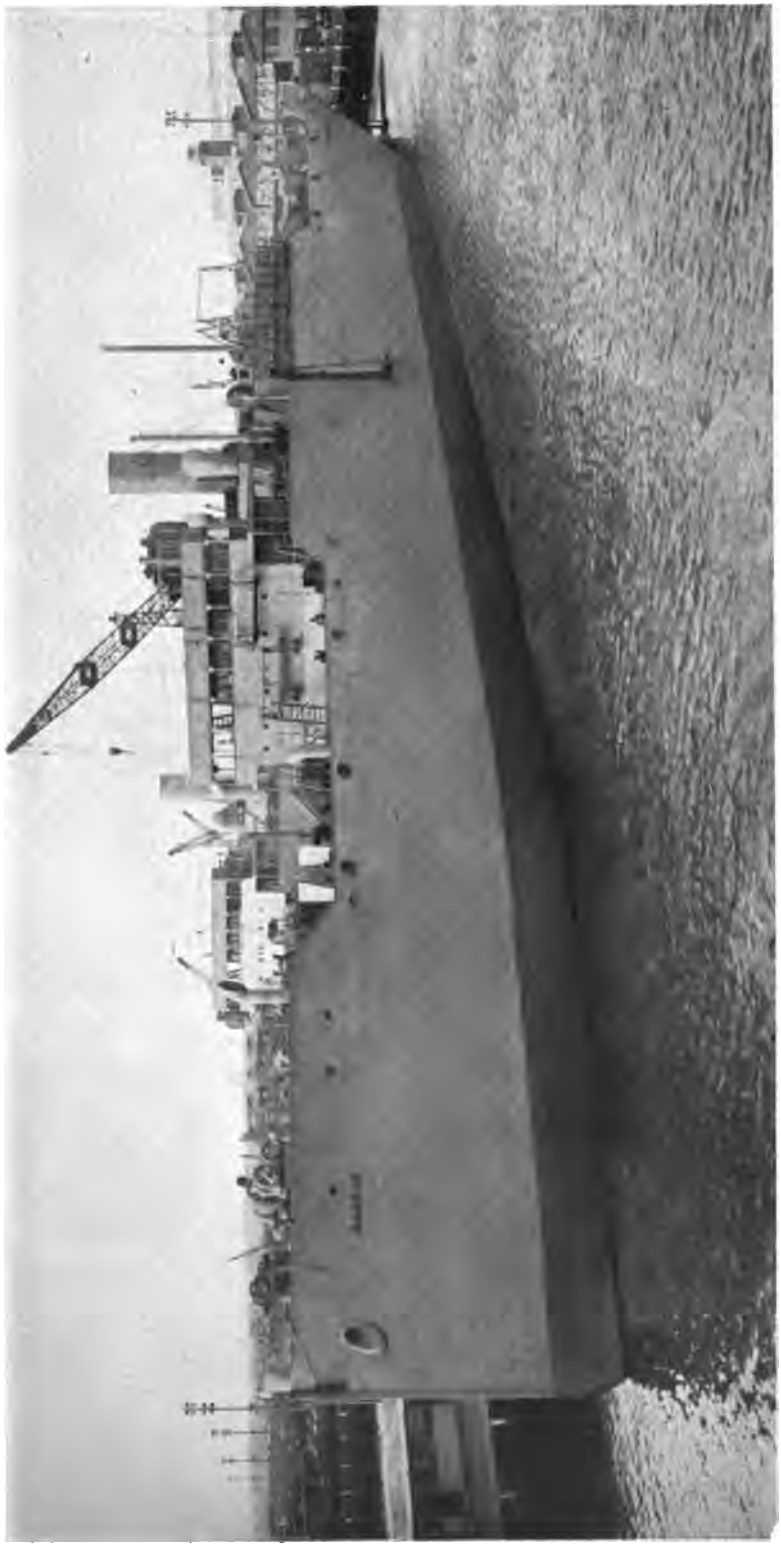


HULL 501 "SALUDA" PIER C. C. LAUNCHED DECEMBER 31, 1918

SACO

SAGAPORACK

HULL 498—"PRUSA," PIER B-2—LAUNCHED DECEMBER 23, 1918.



HULL 506—"SAUCON," PIER C-1—LAUNCHED DECEMBER 31, 1918.

from which we launched the *Quistconck*, and you can see the condition of the second ship on that way; this [indicating] is looking down the ship from the stern; and that [indicating] is looking at the bow from the ground.

This [indicating] is the second way. This [indicating] is the third way, from which a ship has just recently been launched. That [indicating] is the fourth way. The tarpaulins shown in the picture of the fifth way are over her hatches for protection from rain. That answers Senator Nelson's question, because it shows the degree of completion before we launch them.

This [indicating] is the sixth way——

Senator VARDAMAN (interposing). When do you expect to have those ships that are on the ways completed?

Mr. BRUSH. I would rather not make a raw guess. We are doing everything that human energy and ingenuity can do to deliver them promptly, and I believe that they will be delivered promptly. I think we ought not to make promises without sufficient information to know whether we can make good on them.

Senator VARDAMAN. The same purpose did not actuate them when they launched that camouflaged ship before it was finished.

Mr. BRUSH. I think that is true.

The CHAIRMAN. When were those pictures of the ways taken?

Mr. BRUSH. These pictures of the ways were all taken within the last week.

Now, that is our group No. 1 of 10 ways [see illustration on first insert between pages 248 and 249], of which we have five groups. I should appreciate it very much if, throughout the discussion of the Hog Island yard, you would kindly bear in mind that you really have an equivalent of 10 distinct five-way shipyards. I believe that one of the problems with which we have had to contend was the fact that in the analysis of any figures in connection with the yard, it has not been recognized or realized that to fully appreciate what the Government owns there, you should in each case divide whatever figures may be given by 10, which will give you equivalent average figures for a five-way yard, which was approximately the size of most yards previous to the war.

I do not want to take up the time of the committee, but, if you will give me your time, I should like to show you pictures of every one of our 50 ways.

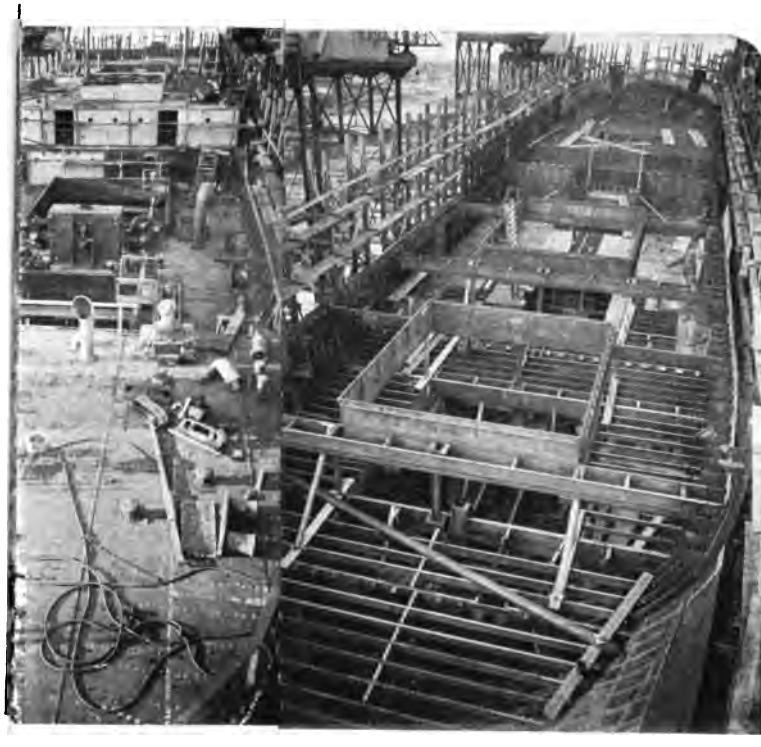
This [see illustration on the second insert between pages 248 and 249] is the second group of ways. In other words, there you see ways Nos. 11, 12, and 13, and so on down to No. 20.

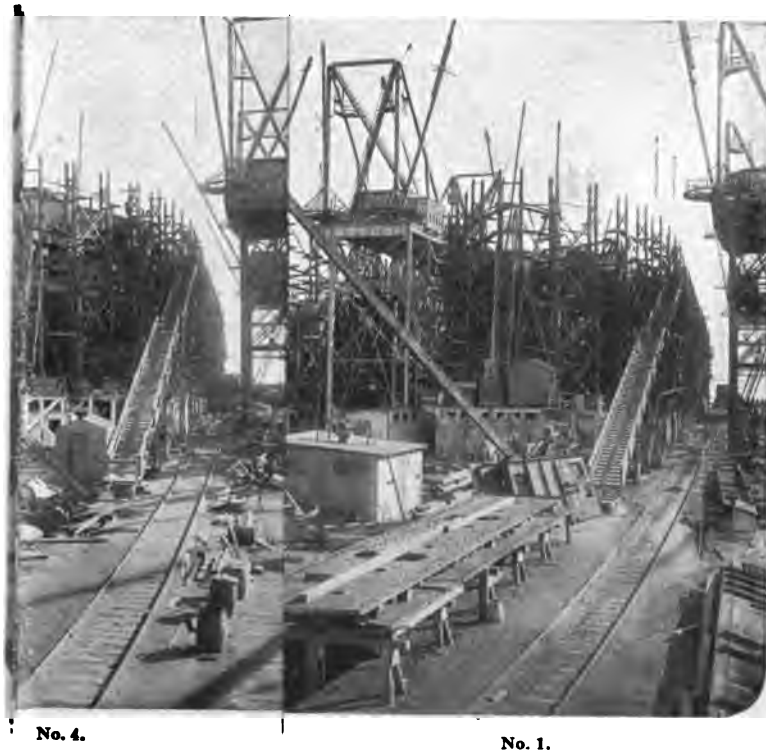
This picture [see illustration on the third insert between pages 248 and 249] shows ways from Nos. 21 to 30.

These two pictures [indicating] show all the ways from 31 to 40 and 41 to 50. [See illustrations on the fourth and fifth inserts between pages 248 and 249.]

In order that you may better understand the photographs of our five groups of 10 ways each, I wish to exhibit to you three photographs taken during the month of July, 1918.

The first one shows the front of the shipways and the space between the shipways and the compressor houses and ways administration buildings. The shipways face Front Street looking north and the compressor houses and ways administration buildings face Front



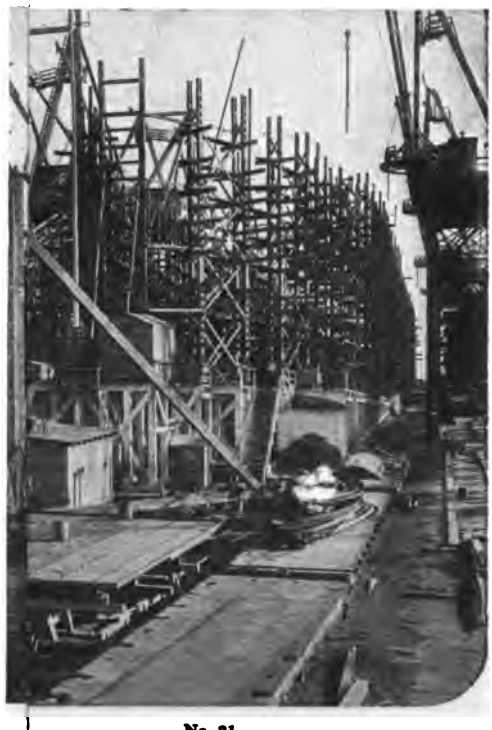


No. 4.

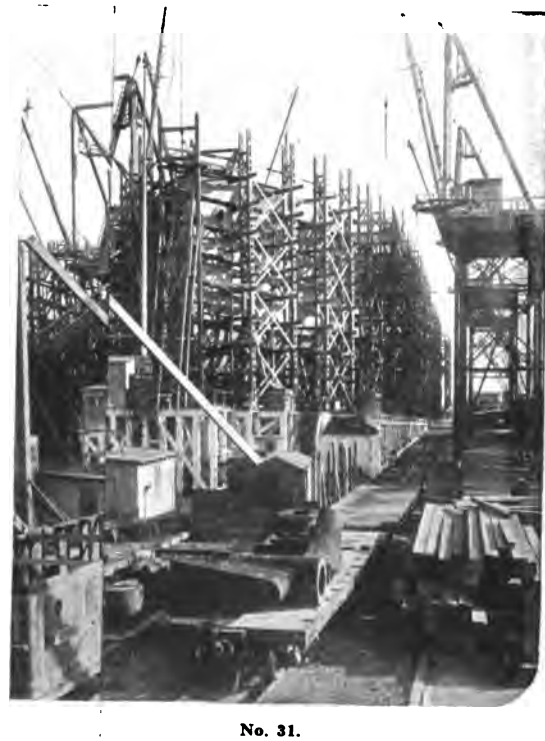
No. 1.

No. 11.

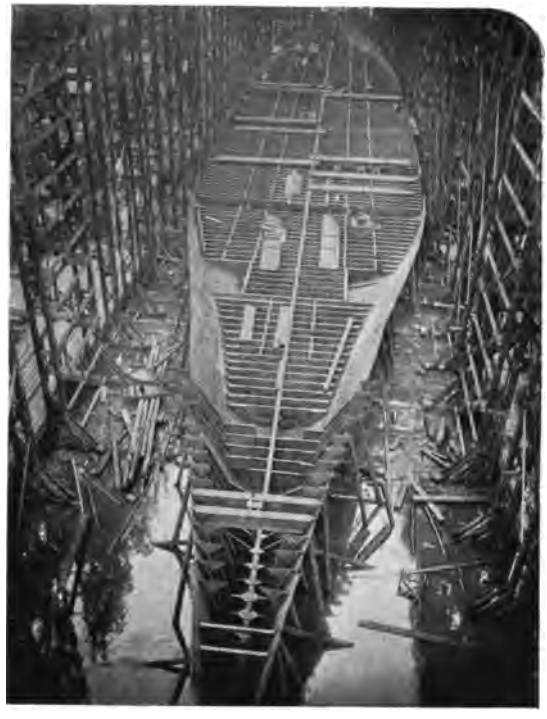
24.



No. 21.



No. 31.



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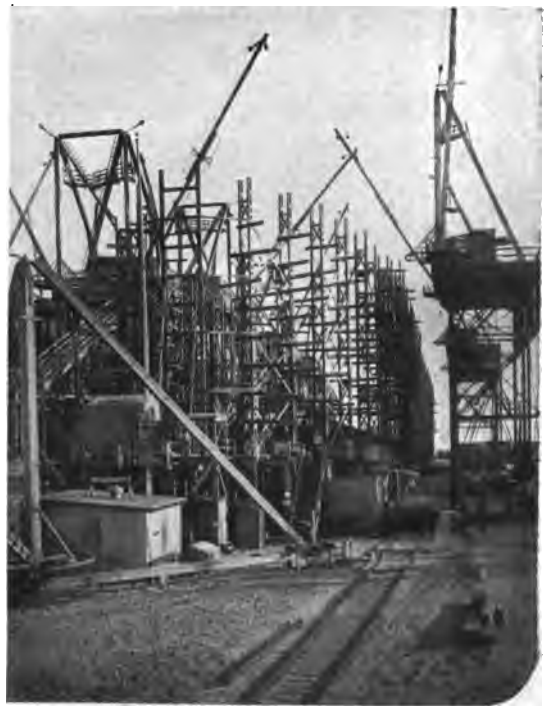


No. 41.

Street looking south. This photograph was taken from Way No. 1, facing north and east. [See illustration, p. 250.]

The second photograph was taken from the river and shows the river view of the entire 50 shipways looking north and east from the south end of Pier M. [See illustration, p. 251.]

The third photograph was taken from one of the derrick houses on Way No. 1, looking east, and shows the forest of derrick booms, of which there are over 400. [See illustration, p. 252.]

Senator VARDAMAN. This looks down, does it not [see illustration on the fifth insert between pp. 248 and 249].

Mr. BRUSH. Yes; from the stern. From where Senator Nelson sits is looking down into the ship, and the other view is looking from the ground toward the bow. That [indicating] is from the stern looking down. That [indicating] is the bow, looking straight at the ship from in front of the way. There you can see how far that ship is finished; you can see the bow here [indicating photograph of ship on way No. 42; see illustration, on the fifth insert between pages 248 and 249].

Senator RANSDELL. She is pretty nearly finished, is she not?

Mr. BRUSH. Yes; Senator Ransdell. I have shown you these pictures merely to give you an indication of the status of the work, which I myself tried to find out when I first reached Hog Island. The total number of rivets driven is equivalent to 32 ships; that is, if they had concentrated on the building of 32 ships instead of 180 ships and with no idea of going further than 32 ships. The work performed up to last week is equivalent to 32 completed ships.

In order that I may, in my office, follow the progress of the ships—and this will answer your question, I think, Senator Kirby—I have brought with me a copy of this chart [indicating] which can be placed in the record.

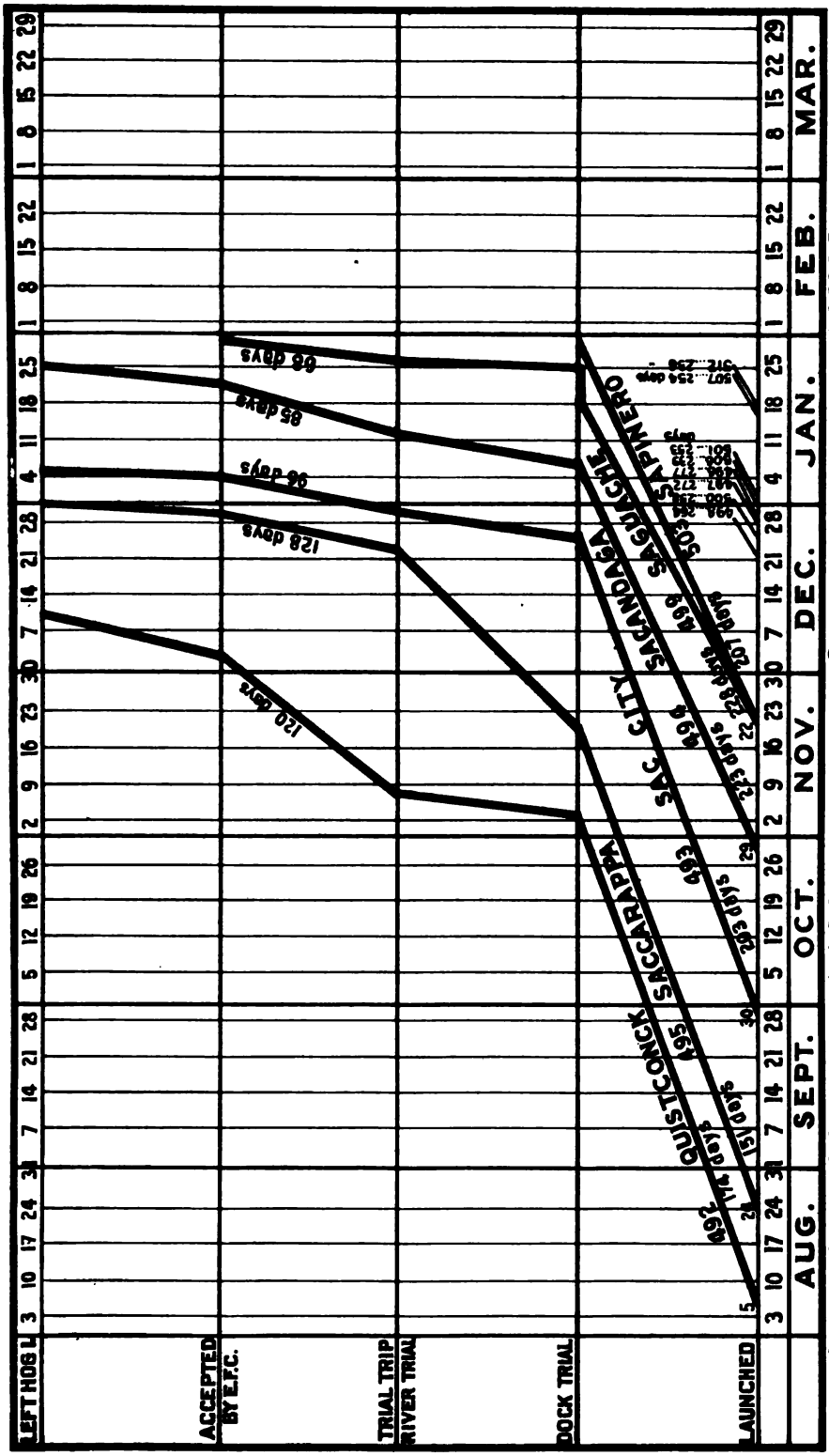
This chart [see illustration, p. 253] gives me the date the ship was launched; the date when she had her dock trial; the date when she had her river trial; the date when we delivered her to the Fleet Corporation, and the date when the Fleet Corporation sailed her away from Hog Island.

Now, you gentlemen who are familiar with charts of engineers, will recognize the fact that when these lines on this chart [indicating] become more nearly parallel, we are becoming consistent in our work. But here is a case where a ship had her dock trial and her river trial, and then consumed too long a time before she was accepted [indicating]. That was the *Quistconck*.

This chart [see illustration, p. 253] shows our last ship, No. 503, *Sapinero*. They hoped to have the dock trial this morning, but they could not make it until Saturday.

Senator LENROOT. Do you think that last ship would be about the average, as to time?

Mr. BRUSH. No; we can do better than that. One of the determining factors of our success at Hog Island is "quantity production." We are taking the matter up with Admiral Bowles now. You gentlemen who have had any experience along this line (and many of you have possibly had much more than I have), have doubtless found that everybody who goes on a ship would like to have it a little different. A captain said to me the other day that everything on his ship was all right, except the captain's cabin, and he wanted that changed.


PROGRESS DIAGRAM OF EACH SHIP AFTER LAUNCHING
LEFT HOG L
ACCEPTED BY E.F.C.
TRIAL TRIP RIVER TRIAL
DOCK TRIAL
LAUNCHED
AUG.
SEPT.
OCT.
NOV.
DEC.
JAN.
FEB.
MAR.
3 10 17 24 31 7 14 21 28 5 12 19 26 2 9 16 23 30 7 14 21 28 4 11 18 25 1 8 15 22 1 8 15 22 29
120 days
128 days
96 days
85 days
66 days
SAC CITY
SAVANNAH
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Now, they must stop asking us to change all of these ships. If we are going to build ships like automobiles are built, in quantity production, we must build them exactly as the contract and specifications provide. But the tendency of a ship captain, or a ship operator, is to ask for things to be made different, and to give us a list of the changes that they want made.

I know that that time record can be improved. We have not commenced to make the showing that we can make.

I have called attention to these models [indicating models on committee table]. This model [see illustration, p. 255] is the class A ship; and that [see illustration, p. 256] is the class B ship, which I will explain later; this is the ship you have heard talked about. It is a model of the 70 B ships, the contract for which was placed at Hog Island, and which Mr. Piez said to you he believed never should have been placed there. It is really a transport; that is the purpose for which it is being built. There are 11 of these keels now being worked on at Hog Island.

Senator RANSDELL. What is the tonnage of those class B ships?

Mr. BRUSH. Eight thousand tons. Those are 15-knot ships. The class A model, of course, is purely a cargo ship.

Senator RANSDELL. What is the price of the B ships?

Mr. BRUSH. The estimated basic cost is $1,650,000.

Senator KIRBY (interposing). Are they all steel boats—the class B ships?

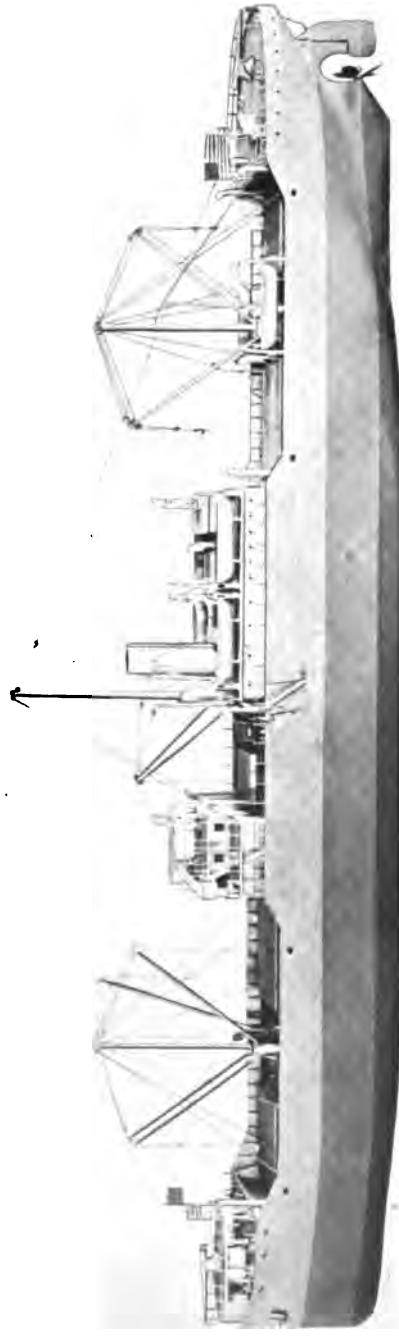
Mr. BRUSH. Yes, Senator; they are steel fabricated ships; the same as the class A ships, except that they are transports.

I think this will be of interest to the committee:

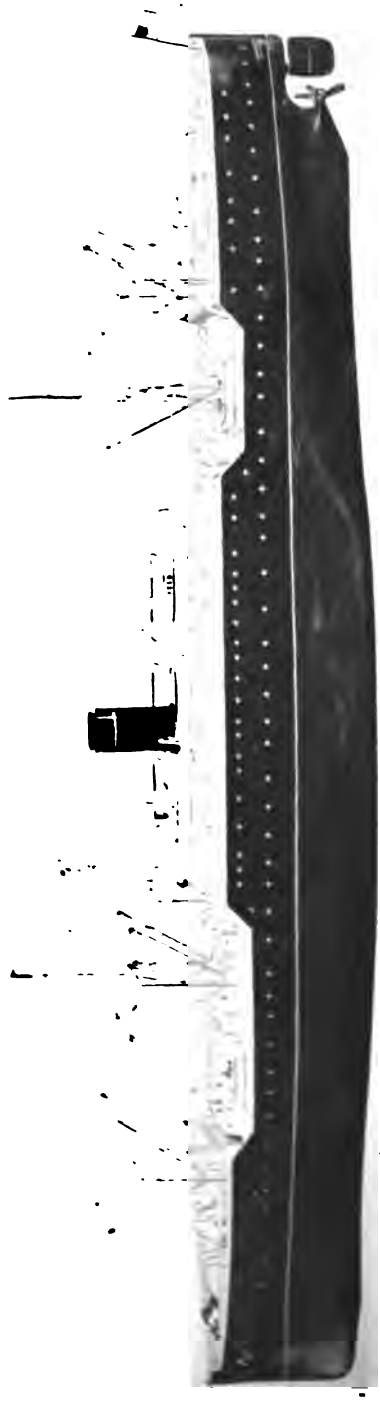
Yesterday there came to Hog Island a committee composed of the following gentlemen: P. A. S. Franklin, president International Mercantile Marine Co.; G. S. Dearborn, president American-Hawaiian Steamship Co.; H. H. Raymond, president Clyde and Mallory Lines; F. D. Strachan, president Southland Steamship Co.; W. F. Gibbs, naval architect; Prof. H. C. Sadler, naval architect for Emergency Fleet Corporation; Admiral F. T. Bowles, assistant general manager Emergency Fleet Corporation; and D. H. Cox, manager Division of Steel Ship Construction, Emergency Fleet Corporation.

They are a committee appointed by the Emergency Fleet Corporation to examine these boats and to consider these and other boats at other shipyards, the plans, etc., to decide to what extent the Fleet Corporation may deem it expedient to make modifications in the design of these boats or what changes they should have in the interior. We do not know, of course, what the committee is going to report, except that it was some satisfaction for me to hear from Mr. Franklin—and I will say perfectly frankly that Mr. Franklin is a director of the American International Corporation that owns our company, so that he may be regarded as a prejudiced witness, but, nevertheless, his opinion was an asset to me, and I have a great deal of confidence in his judgment. However, he is only one member of the committee. He went over the plant yesterday, and I had one of my men telephone and see what he thought of it, and here is what he said:

The Hog Island Shipyard has been fully justified as a war measure. It would have been a great mistake for the E. F. C. not to have provided a shipyard like Hog Island in the serious emergency that existed in shipping.



MODEL OF 7,500 DEADWEIGHT TONS "A" CARGO SHIP.



Our yards had to be expanded overnight and the E. F. C. would have been seriously criticized if they had omitted to provide a yard like Hog Island.

Moreover, Hog Island was of great value in helping to win the war, both in giving moral assistance to our allies and in alarming our enemies.

I went over one of the steamships yesterday lying in the wet basin and found it a very useful steamship, and the Hog Island ships should prove useful to the commerce of this country.

Senator VARDAMAN. What relation has Mr. Franklin to the Emergency Fleet Corporation?

Mr. BRUSH. I understand that Mr. Piez, in his anxiety to act wisely in respect to peace cancellations, as explained to your committee in the last hearing, has appointed a committee, of which Mr. Franklin is chairman, to go over the ship construction program of the Emergency Fleet Corporation at all the yards and then make recommendations in order that Mr. Piez may take it up with the other officers of the Fleet Corporation and the Shipping Board and act intelligently with respect to it.

Senator VARDAMAN. Mr. Franklin is also a stockholder in your company, is he?

Mr. BRUSH. He is a director in our company. I am not reading this, except——

Senator KIRBY (interposing). You have not completed the sixth ship yet?

Mr. BRUSH. No, sir. It is in the outfitting basin about ready for its dock trial.

Senator KIRBY. You said something about changing it from this model, or, rather, from a transport ship. [See illustration, p. 256.]

Mr. BRUSH. No; I did not mean to. I said the A ship is a cargo ship [indicating model; see illustration, p. 255].

Senator KIRBY. I understand the difference. I thought that was a combination ship.

Mr. BRUSH. Our B ship is a combination troop transport and cargo ship.

Senator LENROOT. Is that adapted to general passenger and freight traffic?

Mr. BRUSH. From what they say to me—and I must be governed very largely by what I have been able to learn—Admiral Bowles feels very strongly indeed that that ship is absolutely right and should be built. Other members of the Fleet Corporation do not entirely concur with him, and some outsiders agree with Admiral Bowles and some do not. I think that the committee, which consists of the presidents and officers of several large operating companies and several naval architects, is going to make recommendations to Mr. Piez which will govern any modifications that the Fleet Corporation make in it.

The CHAIRMAN. Which ship is that you are speaking of?

Mr. BRUSH. The B ship.

Senator KIRBY. What is the matter with it that it ought to be modified?

Mr. BRUSH. It is a combination troop and cargo ship and was not built to carry freight and passengers. It is a 15-knot ship, of 8,000 tons, and the comment from such men as Capt. Dollar, who went over the plans with me, and who went over the plans of the *Quistconck* with me, was that a 15-knot ship should be of a greater tonnage than 8,000 and a 15-knot ship should be a combination passenger and freight ship, and not a combination troop and cargo ship.

That ship was designed and planned purely for war purposes.

Senator KIRBY. How many are to be built of those—70?

Mr. BRUSH. There are 70 B ships to be built under our contract: and there are 11 keels laid; practically 75 per cent of the steel is on the island for 35 of them; in other words, about 75 per cent of the material either is in transit from the fabricators to Hog Island or is on hand at our plant for the first 35 B ships. I will give you the figures——

Senator KIRBY (interposing). What would be the life of a ship like that?

Mr. BRUSH. I can not answer that, except to say that I do not know why it should not be as long as the life of any steel ship. All of these are turbine ships.

Senator KIRBY. What I am getting at is, if we are going to keep an Army, we should have transports for it.

Mr. BRUSH. Well, my opinion is not worth much; but if I were President of the United States, I should build transports—but that is my personal opinion, of course.

Senator KIRBY. I was just wondering what the life of those ships would be.

Mr. BRUSH. I think it would be the same as any steel ship.

Senator LENROOT. Do I understand correctly that 20 of those class B ships can be canceled without any loss?

Mr. BRUSH. Not without any loss; but 20 of them could be canceled or changed without any very substantial loss. But if you go back of the 20 I think there would be a tremendous loss.

Senator NELSON. Have those vessels one propeller or two?

Mr. BRUSH. They have only one propeller, Senator Nelson, but they have a high and low pressure turbine, connected through gears to the shaft, and then to the propeller, like the old Corliss cross compound reciprocating engine which had a high and low pressure cylinder, the high-pressure cylinder exhausting into the low-pressure cylinder. In these turbines, the steam goes through from one turbine to another. The turbine makes 3,600 revolutions per minute, and is reduced through several gears to the shaft which turns between 95 and 100 revolutions per minute, which is the number of revolutions of the propeller.

I might say at this point that I am a steam engineer, and an engineer by profession. I am a trained engineer and a trained mechanic; that is my business.

When you get into an engine room in a ship it is no different from an engine room in a power station—and I have been dealing with such for years. I have been dealing with turbines since 1904. At that time I had charge of the installation of a 500-kilowatt turbine, and last year I had charge of the installation of a 35,000-kilowatt turbine, which is as large as they make them.

Now, the gears in that ship [indicating] commencing with the *Quistconck*, up to the ship that was delivered last night, have not given us a particle of trouble in any way, shape, or manner [knocking on table].

Senator NELSON. Where are these gears manufactured?

Mr. BRUSH. At the General Electric works. They are furnished to us by the Emergency Fleet Corporation; we do not buy them.

The gears reduce the revolutions from 3,600 per minute to approximately 100 per minute at the propeller, and those turbines have not given us one particle of trouble since they were installed.

We examine them like they examine the works of a watch. We turn them by hand several revolutions. We pump oil through them for 24 hours and then we take off the cases and we wipe every square inch of them, examining them very minutely, and then we turn them several revolutions more. We have not had one particle of trouble with our gears since they have been installed. We have not had a shaft that was not in perfect alignment.

And as an engineer, I think it is a remarkable thing to take a crowd of men who have not been together as an organization working for years, and have them take a set of blue prints and put together a ship, just like they were building a steel building.

Hog Island, Senators, is an "assembling shipbuilding plant," not an old-line shipbuilding plant.

We assemble the ship with pieces of material fabricated, from blue prints, in 88 fabricating plants and approximately 4,000 manufacturing plants produce the machinery and outfitting scattered throughout the United States.

We bring the material for the ships to Hog Island and it is riveted by many riveters who have never seen a rivet before. We put more than 11,000 men through our school who have since become practical shipbuilders.

The launching of every one of the 14 ships has been perfect. The ships have gone to the wet basin, and they have there installed the turbines, and the gears, and the shafts, etc.

As a matter of interest to the committee, I wish to place in the record a photograph of the launching of the *Schodack* from way No. 12 on January 18, 1919. This is a very interesting photograph taken from the head of the shipway as the ship was taking the water [see illustration, p. 260].

I stood beside the shaft of the *Quistconck* when she made her first revolution and saw the engineer open the throttle—and there never has been one particle of trouble, or one single change in that turbine, or gears, or other mechanism since that time. I know what I am talking about, because the men who can set up a ship from blue prints and have her run and go right out to sea, and have her do well on her voyage have done a good job. They are as fine and as capable a team of outfitting men as you will find in the United States; they are first-class outfitting engineers.

Would you like to have me give the yard layout?

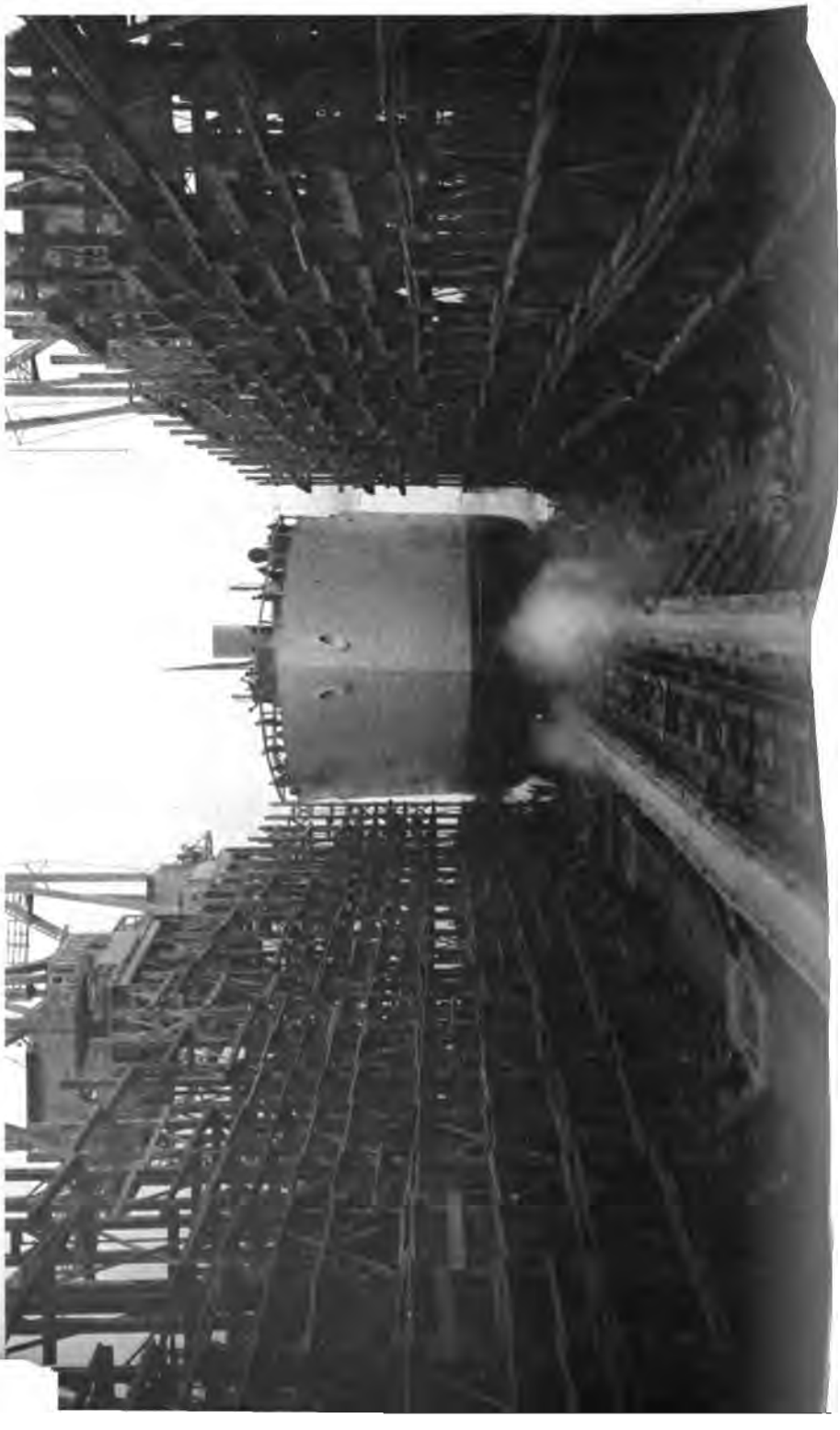
Senator JONES. I wanted first to ask you as to whether there is any serious difference of opinion as to the suitability of that ship—the class B boat—as a transport?

Mr. BRUSH. I do not think so as a transport.

Senator JONES. So that the difference of opinion arises as to what should be done if the ship is changed over to a cargo or passenger ship; does it?

The CHAIRMAN. Yes; it is a question of the use of the ship.

Mr. BRUSH. It is a question as to the use of it. If the war had lasted until next November 11, there would have been no question. I do not think personally that there is any question but what she is a good transport; but it is a question of the adaptability of that design to peace conditions and that is what they are to-day studying



## RECORD OF KEELS LAID AND SHIPS LAUNCHED-FIRST "50 A" SHIPS

| HULL NO. | NAME | KEEL LAID | | | LAUNCHED | | DAYS ON WAYS | DOCK TRIAL | RIVER TRIAL | DAYS IN W.B. | DELIVERED | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | WAY | YARD | DATE | BERTH | DATE | | | | | DATE | TO |
| 492 | QUISTCONCK | 1 | 1 | 2-12-18 | B-2 | 8- 5-18 | 174 | 11- 3-19 | 11- 7-18 | 120 | 12- 3-18 | USSB |
| 495 | SACCARAPPA | 21 | 5 | 3-26-18 | B-4 | 8-24-18 | 151 | 11-20-18 | 12-22-18 | 128 | 12-30-18 | USSB-USN |
| 493 | SAC CITY | 6 | 2 | 3-11-18 | C-1 | 9-30-18 | 205 | 12-26-18 | 12-29-18 | 96 | 1- 4-19 | USSB-USN |
| 494 | SACANDAGA | 2 | 1 | 3-20-18 | C-3 | 10-29-18 | 223 | 1- 7-19 | 1-12-19 | 85 | 1-22-19 | USSB |
| 496 | SACO | 3 | 1 | 3-28-18 | A-1 | 12-30-18 | 277 | | | | | |
| 497 | SAGAPORACK | 22 | 5 | 4- 1-18 | C-2 | 12-29-18 | 272 | | | | | |
| 498 | PRUSA | 7 | 2 | 4- 3-18 | B-2 | 12-23-18 | 264 | | | | | |
| 499 | SAGUACHE | 20 | 4 | 4- 8-18 | A-4 | 11-22-18 | 228 | 1-19-19<br>1-25-19 | 1-26-19 | 68 | 1-29-19 | USSB |
| 500 | SAHALE | 40 | 8 | 4-15-18 | B-4 | 12-27-18 | 256 | | | | | |
| 501 | SALUDA | 41 | 9 | 4-22-18 | C-4 | 12-31-18 | 252 | | | | | |
| 502 | SANGAMON | 4 | 1 | 4-25-18 | | | | | | | | |
| 503 | SAPINERO | 11 | 3 | 4-29-18 | A-2 | 11-22-18 | 207 | | | | | |
| 504 | SARCOXIE | 8 | 2 | 5- 2-18 | | | | | | | | |
| 505 | SATARTIA | 23 | 5 | 5- 4-18 | | | | | | | | |
| 506 | SAUCON | 30 | 6 | 5- 6-18 | C-1 | 12-31-18 | 239 | | | | | |
| 507 | SAUGERTIES | 19 | 4 | 5- 9-18 | C-3 | 1-18-19 | 254 | | | | | |
| 508 | SAUGUS | 31 | 7 | 5-13-18 | | | | | | | | |
| 509 | SCANTIC | 39 | 8 | 5-16-18 | | | | | | | | |
| 510 | SCATACOOK | 50 | 10 | 5-20-18 | | | | | | | | |
| 511 | SCHENECTADY | 42 | 9 | 5-23-18 | | | | | | | | |
| 512 | SCHODACK | 12 | 3 | 5-27-18 | A-3 | 1-18-19 | 236 | | | | | |
| 513 | SCHOHARIE | 5 | 1 | 5-29-18 | | | | | | | | |
| 514 | SCHOODIC | 29 | 6 | 6- 3-18 | | | | | | | | |
| 515 | SCHROON | 32 | 7 | 6- 6-18 | | | | | | | | |
| 516 | SCITICO | 9 | 2 | 6-10-18 | | | | | | | | |
| 517 | SCOOBA | 24 | 5 | 6-12-18 | | | | | | | | |
| 518 | SEBANOOK | 49 | 10 | 6-13-18 | | | | | | | | |
| 519 | SEBETHE | 18 | 4 | 6-17-18 | | | | | | | | |
| 520 | SEBEWA | 38 | 8 | 6-20-18 | | | | | | | | |
| 521 | SEBEWAING | 43 | 9 | 6-24-18 | | | | | | | | |
| 522 | SEEKONK | 13 | 3 | 6-27-18 | | | | | | | | |
| 523 | SENATOBIA | 28 | 6 | 7- 1-18 | | | | | | | | |
| 524 | SHAKOPEE | 33 | 7 | 7- 3-18 | | | | | | | | |
| 525 | SHAMONG | 48 | 10 | 7- 8-18 | | | | | | | | |
| 526 | SHANDAKEN | 10 | 2 | 7-11-18 | | | | | | | | |
| 527 | SHANNOCK | 25 | 5 | 7-15-18 | | | | | | | | |
| 528 | SHAUME | 17 | 4 | 7-18-18 | | | | | | | | |
| 529 | SHAVANO | 1 | 1 | 8- 5-18 | | | | | | | | |
| 530 | SHAWAN | 14 | 3 | 8-19-19 | | | | | | | | |
| 531 | SHAWANGUNK | 15 | 3 | 8-22-18 | | | | | | | | |
| 532 | SHAWANO | 16 | 4 | 8-26-18 | | | | | | | | |
| 533 | SHEBOYGAN | 44 | 9 | 9- 9-18 | | | | | | | | |
| 534 | SHEPAUG | 47 | 10 | 9-11-18 | | | | | | | | |
| 535 | SHESHEQUIN | 6 | 2 | 10-21-18 | | | | | | | | |
| 536 | SHETUCKET | 34 | 7 | 10-22-18 | | | | | | | | |
| 537 | SHICKSHINNY | 37 | 8 | 10-24-18 | | | | | | | | |
| 538 | SHINNECOCK | 2 | 1 | 11- 4-18 | | | | | | | | |
| 539 | ZETELLA | 11 | 3 | 11-30-18 | | | | | | | | |
| 540 | SHIVWITS | 20 | 4 | 12- 3-18 | | | | | | | | |
| 541 | SHOCCOREE | 7 | 2 | 12-27-18 | | | | | | | | |

## LOG OF BOATS IN SERVICE

QUISTCONCK - LEFT HOG ISLAND DECEMBER 10,1918. PROCEEDED TO NORFOLK VA. LEFT NORFOLK VA. ON JANUARY 2,1919 LOADED WITH FULL CARGO OF COAL. DELIVERED AT CRISTOBAL JANUARY 10. ARRIVED NEW-ORLEANS JANUARY 23RD. MANNED BY EMERGENCY FLEET CORPORATION CREW. ALL AMERICAN CREW.

SACCARAPPA - LEFT HOG ISLAND DECEMBER 31,1918. PROCEEDED TO PHILA. LEFT PHILA. JANUARY 18 FOR NEW YORK. ARRIVED NEW YORK JANUARY 20 TO LOAD GENERAL MERCHANDISE MANUFACTURED IN THIS COUNTRY FOR RIO DE JANEIRO, BRAZIL. MANNED BY AN AMERICAN CREW.

SAC CITY - LEFT HOG ISLAND JANUARY 6. PROCEEDED TO PHILA. LEFT PHILA. JANUARY 23RD FOR NORFOLK VA. ARRIVED NORFOLK VA. JANUARY 25. LEFT NORFOLK JANUARY 29 FOR MONTEVIDEO. MANNED BY NAVAL OVERSEAS CREW.

SACANDAGA - LEFT HOG ISLAND JANUARY 25 FOR NEW YORK. ARRIVED NEW YORK JANUARY 26TH TO LOAD GENERAL MERCHANDISE FOR CHILE-WEST COAST OF SOUTH AMERICA - THROUGH PANAMA CANAL. AMERICAN MANNED AND AMERICAN GOODS.

JAN. 30, 19

**RECORD OF KEELS LAID AND SHIPS LAUNCHED—FIRST 50 "A" SHIPS " F-2," JANUARY 28, 1919.**

Mr. BRUSH. It shows the date of dock trial and of the river trial, and the days in the wet basin, as well as the date delivered and the date it left Hog Island. If we can keep on improving the time in our wet basin we will very much shorten the time of delivery. You see, we started out with 120 days, and now we have it down to 68. The reason for that is that we are now doing the work on the ways where we ought to do it, instead of doing it in the wet basin.

Senator LENROOT. I notice that on hull No. 502 the keel was laid April 25, 1918, and on hull 512 the keel was laid a month later, but that ship has been launched.

Mr. BRUSH. Yes, sir.

Senator LENROOT. What is the reason for the delay on No. 502?

Mr. BRUSH. That arose in connection with the distribution of material. Originally, when the material came in, everybody was talking "tonnage." Now, tonnage is not worth a nickel to us; it is pieces that we need, because you could have 99½ per cent of your tonnage in the yard and be shy one single piece that you needed at the time, and you could not go on with your ship. Now, they put the pieces of material on the ships that are most convenient to work on without respect to the date that keels were laid.

When the lines on chart No. W-54, which I exhibited to you a few minutes ago, are parallel, we will be consistent in our work. [See illustration, p. 253.]

This chart [see F-3, printed below] shows the degree of completion of every ship on the island. It includes the 50 on the ways, the 14 that have been launched, including the 5 that have been delivered. We have laid the keels of 11 of the class B ships, and the keels of 3 of the second 60 A's. I will hand this chart to the stenographer, and he can place it in the record.

(The chart F-3 referred to is here printed in full as follows:)

"F-3" [Jan. 29, 1919].

| Hull No. | Name. | Location. | Per cent complete. | Remarks. |
|---|---|---|---|---|
| A—492 | Quistconck | | 100.0 | Delivered. |
| 495 | Saccarappa | | 100.0 | Do. |
| 493 | Sac City | | 100.0 | Do. |
| 494 | Sacandaga | | 100.0 | Do. |
| 499 | Saguache | A-4 | 100.0 | Do. |
| 503 | Sapinero | A-2 | 99.0 | Will be delivered within a week. |
| 498 | Prusa | B-2 | 85.0 | |
| 500 | Sahale | B-4 | 86.0 | |
| 497 | Sagaporack | C-2 | 93.0 | |
| 496 | Saco | A-1 | 85.0 | |
| 506 | Saucon | C-1 | 85.0 | |
| 501 | Saluda | C-4 | 88.0 | |
| 507 | Saugerties | C-3 | 84.0 | |
| 512 | Schodack | A-3 | 83.0 | |
| 502 | Sangamon | 4 | 76.5 | |
| 504 | Sarcoxie | 8 | 73.0 | |
| 505 | Satartia | 23 | 74.0 | |
| 508 | Saugus | 31 | 84.0 | |
| 509 | Scantic | 39 | 76.5 | |
| 510 | Scatacook | 50 | 69.0 | |
| 511 | Schenectady | 42 | 80.0 | |
| 513 | Schoharie | 5 | 74.8 | |
| 514 | Schoodic | 29 | 69.2 | |
| 515 | Schroon | 32 | 78.0 | |
| 516 | Scitico | 9 | 59.0 | |
| 517 | Scooba | 24 | 39.0 | |
| 518 | Sebamook | 49 | 55.5 | |
| 519 | Sebethe | 18 | 53.5 | |
| 520 | Sebewa | 38 | 50.0 | |
| 521 | Sebewaing | 43 | 56.0 | |
| 522 | Seekonk | 13 | 58.0 | |
| 523 | Senatobia | 28 | 50.0 | |
| 524 | Shakopee | 33 | 52.0 | |
| 525 | Shamong | 48 | 39.0 | |
| 526 | Shandaken | 10 | 40.0 | |
| 527 | Shannock | 25 | 33.0 | |

| Hull No. | Name. | Location. | Per cent complete. | Remarks. |
|---|---|---|---|---|
| A—528 | Shaume | 17 | 47.0 | |
| 529 | Shavano | 1 | 46.0 | |
| 530 | Shawan | 14 | 38.0 | |
| 531 | Shawangunk | 15 | 33.0 | |
| 532 | Shawano | 16 | 34.0 | |
| 533 | Sheboygan | 44 | 39.0 | |
| 534 | Shepaug | 47 | 31.0 | |
| 535 | Sheshequin | 6 | 31.0 | |
| 536 | Shetucket | 34 | 28.0 | |
| 537 | Shickshinny | 37 | 26.0 | |
| 538 | Shinnecock | 2 | 24.0 | |
| 539 | Zetella | 11 | 13.0 | |
| 540 | Shivwits | 20 | 11.0 | |
| 541 | Shoccoree | 7 | 19.0 | Fiftieth A vessel. Average of 50 is [illegible] per cent completed. |
| B—669 | Shohokin | 35 | 9.0 | First B vessel. |
| 670 | Shohola | 45 | 15.0 | |
| 671 | Shope | 36 | 16.0 | |
| 672 | Sinnemahoning | 26 | 14.0 | |
| 673 | Sinsinawa | 46 | 14.0 | |
| 674 | Siskowit | 21 | 14.0 | |
| 675 | Sisladobsis | 27 | 14.0 | |
| 676 | Sisseton | 40 | 10.6 | |
| 677 | Sitkum | 41 | 9.0 | |
| 678 | Skamania | 22 | 3.5 | |
| 679 | Skanawono | 30 | 1.1 | Average of 11 B's is 12 per cent completed. |
| A—1482 | Red Jacket | 3 | 1.0 | First of second 60 A vessels. |
| 1483 | Cimarron | 12 | 1.0 | |
| 1484 | Cinnabar | 19 | 1.0 | |

Total, 64 vessels. Total equivalent of 32 complete A vessels.

Mr. BRUSH. Do I make myself clear in regard to these contracts? We have a contract for 50 of the so-called A ships; then we have a contract for 60 more A ships exactly the same; then we have a contract for 70 of the troop ships, or class B ships. We call them the first A's, the second A's, and the B's.

Senator NELSON. When do you expect to go on and complete these ships?

Mr. BRUSH. I am going to keep on hurrying until somebody stops me—and if they are going to stop us they will have to hurry in order to do it.

Senator NELSON. I am so old that I will not see the last of them. [Laughter.]

Mr. BRUSH. Oh, yes, you will, Senator Nelson; we are going to have you come up and christen the last one of them.

Senator JONES. It might be interesting to know whether or not you have really figured out, if you are allowed to go on and your organization is to continue in operation, when you are going to launch the last ship.

Mr. BRUSH. I have not, but I will. I went in there on December 13, 1918. The first thing I tried to do was to try to get acquainted with my men, and to get the men acquainted with me.

Senator JONES. I think you were wise in that.

Mr. BRUSH. And I am the kind of a fellow who likes to tell you the kind of a whale of a job I have done, instead of telling you what I am going to do.

Senator JONES. That is the kind of men that accomplish things.

Mr. BRUSH. Now, I have tried to find out how we compare with other shipyards with regard to driving rivets, and the last figures I have are of the week of November 30, 1918; we have made a comparison of the rivets driven in the various plants in our district.

The CHAIRMAN. That will be inserted in the record at this point.

(The statement referred to is here printed in full as follows:)

"F-4."

*Riveting, week ending Nov. 30, 1918.*

| Plant. | Rivets per gang day. | Cost per rivet. | Plant. | Rivets per gang day. | Cost per rivet. |
|---|---|---|---|---|---|
| Harlan plant | 292 | $0.079 | Chester shipyard | 243 | $.097 |
| Cramps shipyard | 131 | .142 | Merchants' shipyard | 166 | .126 |
| P. & J., Gloucester | 239 | .089 | Hog Island shipyard | 242 | .093 |
| P. & J., Wilmington | 167 | .148 | | | |
| New York shipyard | 306 | .090 | Average | 222 | .102 |
| Sun shipyard | 154 | .156 | | | |

Mr. BRUSH. The next statement shows the progress that has been made from August 1 to December 1 in the number of rivets driven per gang per day and the cost per rivet. [See chart F-5 printed below.]

Senator JONES. And is the gang the same number of men in each of these yards?

Mr. BRUSH. Yes, sir. You see every one of these yards is under the Macy Board, absolutely, so that those comparisons mean something, and here is a photograph of a typical riveting gang. [See illustration, p. 266.] The man with the rivet gun in his hand is the riveter. The man standing below, holding the rivet in place, is the holder-on, and the boy at the rivet furnace is the heater boy.

Senator NELSON. Your gangs are composed of three men, are they?

Mr. BRUSH. Yes, sir; three and four men. The last column in this table shows the cost per rivet. There were two shipyards ahead of us in the number of rivets driven per gang. Of course I have my own figures on that since then, but I can not give you any later figures for the other yards now. But I was anxious to see whether we were improving or not, and I found that our number of rivets per gang per day had increased from 104 in August to 242 on December 1, and our cost per rivet had decreased from 21.1 cents on August 1 to 9.3 cents on December 1.

Senator JONES. You said there were only two yards ahead of you; it shows three on this sheet. [Indicating.]

Mr. BRUSH. Yes; there were three ahead of us. My error, Senator Jones.

The CHAIRMAN. The statement which you have there showing the progress in the riveting at Hog Island will be inserted in the record at this point.

(The statement referred to is here printed in full, as follows:)

"F-5."

*Progress in riveting, Hog Island.*

| Date. | Rivets per day. | Rivets per gang day. | Cost per rivet. |
|---|---|---|---|
| Aug. 1 | 30,000 | 104 | 0.211 |
| Sept. 1 | 56,000 | 120 | .141 |
| Oct. 1 | 100,000 | 152 | .138 |
| Nov. 1 | 130,000 | 200 | .104 |
| Dec. 1 | 140,000 | 242 | .093 |

Senator LENROOT. Are these comparisons of rivets driven for ships of the same character?

Mr. BRUSH. There are no other ships of exactly the same character.

Senator LENROOT. But they are cargo ships, are they?

Mr. BRUSH. These are cargo ships; and, of course, that comparison does not mean a great deal, except that it helps us to encourage our men to feel that we have a bogey to work to and that is the reason we have accomplished what we have accomplished.

Senator RANSDELL. Will you tell us which of these plants on this statement are Government plants?

Mr. BRUSH. That [indicating] is the Government fabricating plant, at Bristol, Pa.

Senator VARDAMAN. The plant of the Merchants Shipbuilding Corporation?

Mr. BRUSH. Yes, Senator Vardaman.

The CHAIRMAN. When you speak of the different plants please name them so that the record will show to which you refer.

Mr. BRUSH. Now, the Chester plant is doing Government work. There are no other plants similar to ours in that table. In other words, the Harlan & Hollingsworth plant, the Cramps, the Gloucester, the Wilmington, and the Sun are all doing a tremendous amount of Government work, but they are not so-called Government plants.

Senator RANSDELL. How long have they been in operation, relatively? What I mean is, I want to see if those other yards are old-established plants as compared to Hog Island, about which, of course, we know.

Mr. BRUSH. Cramps is older than I am. And all these plants shown on the table are old plants except the Sun—which may not be as old, and the Merchants—at Bristol.

Senator RANSDELL. The New York shipyard is an old one, is it not?

Mr. BRUSH. Yes, sir.

Senator RANSDELL. They are all old except the Merchants, the Sun, and Hog Island?

Mr. BRUSH. Yes, sir; as far as I know. But if our work is laid out as it should be, and our material comes along on schedule, and we do not beat these other yards in rivet driving, there is no excuse for us, provided our material comes to us, as it should, in sequence, because that is the secret of success in building fabricated ships the way we are building them.

Senator NELSON. Let me suggest to you that in Cramps' yard they are building a lot of naval vessels.

Mr. BRUSH. Yes, sir.

Senator NELSON. And I take it that the riveting on those is a more difficult job.

Mr. BRUSH. Yes, sir.

Senator NELSON. More difficult than it is on merchant vessels.

Mr. BRUSH. There is no question about that, provided they are battleships and that is the reason I said what I did about using these comparisons to encourage our men.

Senator NELSON. And therefore these figures as to Cramps' yard, if they are included, are not exactly a fair comparison.

Mr. BRUSH. Perhaps not for your purposes, Senator Nelson, but it is a bully comparison for me to sit around a table with my boys and see if we can not get somewhere.

Senator NELSON. Yes; I understand.

Mr. BRUSH. May I say that my assistant says that in the cost per rivet driven in that riveting table there are no naval vessels included; they are all merchant ships, so that we are better off than we thought. [See chart F-4, p. 265.]

Senator VARDAMAN. May I ask you if there is any difference in the difficulty of riveting in those other yards from that in your own yard?

Mr. BRUSH. Well, for instance, there is no difference in the Merchants' yard, of course, because both are Government plants—fabricating plants—building the same kind of ship. There is some difference in the tonnage, but aside from that we are on the same basis, practically, as to manner of construction. The other plants, to the extent that they are building individual cargo ships, have not the advantage that we have, because that is the advantage of the fabricated ship, that the material shall come in sequence, and that the riveters shall do the same class of work day after day on the same type of ship, which gives them an advantage.

Senator VARDAMAN. Can you put in more rivets in a given length of time in one place than you could in another?

Mr. BRUSH. Yes, sir; it depends entirely on the class of riveting the man is working on. You take a ship and go right down in there [indicating the midship section of the shell of the model of the A ship; see illustration, p. 255] and put his holder-on and his heater boy inside there, and have him have his gun there [indicating]—and the fellow that can not do a whale of a job there has something the matter with him. But in the tanks and around the deckhouse and other similar work the number of rivets that can be driven per hour or per day is very small in comparison. We have just worked out a plan (with the aid of my assistant, Mr. W. B. Ferguson, who is a brother of Mr. Homer Ferguson, of the Newport News plant) with the Macy Board for that very thing, so as to give us a piece rate on scattered rivets.

Senator NELSON. There is another question I want to ask in that connection: In your fabricating yard, do you get single plates and rivet them in the yard or are some of these plates riveted in sections when they come to you?

Mr. BRUSH. A small percentage of the pieces are riveted when they come to us.

Senator NELSON. You get a lot of those plates riveted in sections, and that saves you a good deal of riveting in the yard?

Mr. BRUSH. Yes; about 17 per cent of the total number of rivets are riveted in the fabricating plants off the island, but it is against us in a way, because the shops who do that riveting have taken advantage of a lot of easy rivets.

Senator NELSON. How do you find that riveting that comes to you on the plate?

Mr. BRUSH. As to its quality?

Senator NELSON. Yes.

Mr. BRUSH. Our men are on the ground at the fabricating plants to inspect it and the piece is not allowed to leave the shop until it is inspected.

Senator NELSON. So that is all right?

Mr. BRUSH. Yes; we have inspectors in every one of the 88 fabricating plants to which steel is shipped from 38 mills.

Senator JONES (interposing). On August 1, the number of rivets driven per gang per day was 104, and on December 1 it was 242? [See chart F-5, p. 265.]

Mr. BRUSH. Yes, sir.

Senator JONES. Were those rivets driven under the same conditions, substantially?

Mr. BRUSH. Yes, sir.

Senator JONES. And were those rivets driven in different parts of the ships, or the same parts?

Mr. BRUSH. In other words, you mean were the average conditions the same? In other words, was the average on December 1 of 242 under the same conditions substantially as the average of August 1 of 104? Mr. Ferguson can answer that, I think.

Mr. FERGUSON. Practically the same.

Senator JONES. If that is true, have you taken steps to ascertain, since you have been there, why only 104 rivets per gang per day were driven on August 1?

Mr. BRUSH. I have.

Senator JONES. Can you tell us why it was?

Mr. BRUSH. I found that at the time they drove 104 rivets per day, they had tailors, bookkeepers, jewelers, florists, and everybody else trying to drive rivets. We put through our training school over 11,000 men, teaching them to build ships. We are entitled to no credit for that school, as I say, because it is a policy of the Fleet Corporation; we have there a corking, fine, capable lot of instructors, about 70, in charge of teaching.

Senator JONES. In other words, on August 1 a large number of the riveters were really inexperienced, so far as driving rivets is concerned?

Mr. BRUSH. Yes, Senator. A man experienced as a riveter did not have to go around last August hunting for a job but a man experienced as a shipbuilder could get a corking good job at any shipyard.

As an evidence of what the school accomplished, I will say that 48 per cent of the riveters now in our employ are men who have gone through the school. We have recently changed our policy at the school, so that those men, instead of working at something in the school yard in order to learn riveting and not produce anything, now actually do riveting on parts of the ship. The information I receive in my office on my daily report of rivets driven shows the number of rivets driven by actual gangs, and also the number driven by the school gangs.

Senator NELSON. Do you pay them by the piece?

Mr. BRUSH. We pay them by the hour while they are learning and just as soon as they get far enough along to get paid for piecework, they are paid by the piece.

Senator VARDAMAN. Can you tell us what those beginners get, and what the experienced men get?

Mr. BRUSH. In the school, under the Macy award, we pay student riveters 56 cents per hour for a period not to exceed six weeks, within which time he becomes a journeyman and is paid the 80-cent rate. We pay student holders-on 48 cents per hour for a period of not to exceed four weeks, within which time he becomes a journeyman and is paid the 60-cent rate. We pay student heaters 46 cents per hour for a period not to exceed two weeks, within which time he becomes a journeyman and is paid the 50-cent rate.

Senator NELSON. All of the three men in the gang get that?

Mr. BRUSH. No; it is 80 cents, 60 cents, and 50 cents; the riveter gets 80 cents, the holder-on gets 60 cents, and the heater boy gets 50 cents an hour.

Senator JONES. They do not get paid, then, by the piece?

Mr. BRUSH. We have a piece rate established by the Macy Board and a large number of our men are working on piecework. The man receives the rates per hour I just mentioned if he is working by the hour. We are trying to put all of our men on piecework as far as we can.

Senator JONES. How much do those experienced men make a day on piecework?

Mr. BRUSH. How much would you say, Mr. Ferguson?

Mr. FERGUSON. Good ones make $70 per week.

Senator VARDAMAN. That is the highest-price man?

Mr. BRUSH. Yes, sir. That is the average earning per week of the best men.

Senator JONES. That is eight hours per day, is it?

Mr. BRUSH. Yes, Senator; eight hours per day.

The CHAIRMAN. You do not work any extra time now, do you?

Mr. BRUSH. I think I ought to answer that question right here, if I may, in some detail. May I answer the question about overtime in detail, because it applies to this question of what these men make?

Senator NELSON. Yes; and also Sundays.

Mr. BRUSH. Yes, Senator Nelson. On November 12, 1918, the day after the armistice, a letter was written by Admiral Bowles to the local representative of the Fleet Corporation reading as follows:

UNITED STATES SHIPPING BOARD,
EMERGENCY FLEET CORPORATION,
*Philadelphia, November 12, 1918.*

Memorandum to Mr. H. C. HIGGINS,
*Authorized Representative.*

Please issue the following instructions to the agent:

"Effective Thursday morning November 14, cut out all overtime and Sunday work. Special permission must be obtained for any overtime required to meet emergencies. Work is to be regulated on the basis of economy and efficiency and not on the speed basis."

F. T. BOWLES,
*Assistant General Manager.*

Then we received this letter from Mr. Piez and Admiral Bowles, dated November 19, 1918. It is called General Order No. 140, and is as follows [reading]:

To: District managers for action.
To: Others for information.
Subject: Sunday work and overtime.

A joint agreement has been entered into by the Secretary of War, the Secretary of the Navy, and the chairman of the United States Shipping Board, to eliminate Sunday work and overtime.

The determination of the basic day for the shipyard workers rests with the Shipbuilding Labor Adjustment Board. The board has ruled that eight hours shall constitute a day's work. Rulings concerning Saturday afternoons and holidays are also contained in the decisions of the board. These various rulings are binding upon the shipyards under the jurisdiction of the United States Shipping Board Emergency Fleet Corporation.

No overtime shall hereafter be worked in any shipyard under the jurisdiction of the United States Shipping Board Emergency Fleet Corporation except where ordered by the district manager.

Special Order No. 108—subject, Sunday work in shipyards—is hereby modified to read that no Sunday work shall hereafter be done except where ordered by the district manager.

CHARLES PIEZ,
*Vice President and General Manager.*
F. T. BOWLES.

Mr. BRUSH. That was handed to our company by their local representative, and since that time we have done no Sunday or overtime work without specific permission of the local representative on the island. When we had a ship ready to deliver, except some small job, or in case we wanted to launch a boat, or had something to do to a tank, or something of that kind, he would permit us to work a minimum number of men overtime. In order that the committee may have a comparison of the view at Hog Island when we were working at night with one taken during the day, I wish to present two photographs: First, a view looking east from Pier A showing the entire 50 shipways taken in the daytime [see illustration, p. 272]; and the other one showing the same view, taken at night [See illustration, p. 273]. Since the armistice we have done very little night work.

Senator RANSDELL. How about Saturday afternoon?

Mr. BRUSH. Our plant closes down at 12 o'clock Saturday noon until 7 o'clock Monday morning.

Senator NELSON. You do not work Saturday afternoon?

Mr. BRUSH. No, sir.

Senator NELSON. Do you pay them for that?

Mr. BRUSH. No, Senator, but I want you to know that the president and his associates work Saturday afternoons and Sundays.

You have before you a chart, No. F-1 [See illustration on insert between pages 260 and 261], which shows the present condition of every keel laid, which I spoke of a few minutes ago. This chart shows both the number and names of the ships, the location of the yard, the percentage of completion of the whole ship, the first five being completed and delivered, all of those being the so-called A ships, and in that connection I wish to present a statement which shows the steel situation, which has been a matter of considerable concern and interest to us. This shows the steel erected and rivets driven at the island up to date, starting in February, 1918, showing the tons of steel erected and the number of rivets driven each month. I knew the rivet drive down to January 27, and I have taken the liberty of estimating the last three or four days in January, so as to get a comparison with the month of December, 1918. The first column is the tons of steel erected; the second is the rivets driven; the next is the cumulative statement—that is, arriving at the total for each month to date—and the third is the cumulative average number of tons of steel erected and rivets driven per month to date. A total of 120,642 tons have been erected, and 17,146,665 rivets have

NIGHT VIEW OF THE SHIPWAYS AT WORK.

been driven, or an average of 1,428,888 rivets a month and an average of 10,054 tons of steel erected per month.

(The exhibit referred to is here printed in full, as follows:)

"F-6-1."

*Steel erected and rivets driven at Hog Island to date, Jan. 29, 1919.*

| Month. | During the month. | | Cumulative. | | Average per month. | |
|---|---|---|---|---|---|---|
| | Steel erected. | Rivets driven. | Steel. | Rivets. | Steel. | Rivets. |
| 1918. | *Tons.* | | *Tons.* | | *Tons.* | |
| February | 85 | 1,845 | 85 | 1,845 | 85 | 1,[illegible] |
| March | 588 | 14,966 | 673 | 16,811 | 337 | 8,4[illegible] |
| April | 2,191 | 88,282 | 2,864 | 105,093 | 955 | 35,[illegible] |
| May | 5,567 | 298,332 | 8,431 | 403,425 | 1,392 | 100,[illegible] |
| June | 8,613 | 586,038 | 17,044 | 989,463 | 1,723 | 197,[illegible] |
| July | 12,688 | 857,989 | 29,712 | 1,847,36[illegible] | 4,952 | 307,[illegible] |
| August | 13,322 | 1,187,708 | 43,034 | 3,035,069 | 6,148 | 433,[illegible] |
| September | 15,914 | 2,230,242 | 58,948 | 5,265,311 | 7,368 | 65[illegible] |
| October | 16,276 | 2,856,445 | 75,224 | 8,121,756 | 8,356 | 902,[illegible] |
| November | 14,368 | 3,248,278 | 89,592 | 11,370,034 | 8,959 | 1,137,[illegible] |
| December | 15,049 | 2,876,631 | 104,642 | 14,246,665 | 9,513 | 1,295,[illegible] |
| 1919. | | | | | | |
| To Jan. 27, inclusive | 13,551 | 2,419,399 | 118,193 | 16,666,064 | ..... | ..... |
| Estimated for January | 16,000 | 2,900,000 | 120,642 | 17,146,665 | 10,054 | 1,428,[illegible] |

Mr. BRUSH. In order that you might have in addition to the model some conception of the profile or deck plan of these ships, which is one of the first things I asked for when I took charge, I had this chart prepared. [Exhibiting chart; see illustration, p. 275.]

The outside dark line in both cases refers to the B boat; the broken line the A boat and the dotted line shows the submarine boat that is being built by the Submarine Boat Co., at Newark, N. J., which is a 5,000-ton boat, and our boats 7,500-ton and 8,000-ton.

The thing which struck us most forcibly about the B boat was the very marked difference in design from our A boat and the submarine boat. You will notice that the bowline of the B boat crosses the bowline of both the other boats; you will notice how much sharper it is. The displacement of the B boat exceeds the Submarine Boat Co. boat 89 per cent and our A boat exceeds the displacement of the submarine boat 48.6 per cent. So far as the length is concerned, our A boat, 401 feet long, is 19.5 per cent longer than the submarine boat and our B boat, which is 448 feet long, is 33.5 per cent longer than the submarine boat. I merely wanted to give you a comparison of the three boats.

The CHAIRMAN. It is a great deal larger than the submarine boat?

Mr. BRUSH. Our B boat is 8,000 tons and our A boat is 7,500 tons against their 5,000-ton boat.

The CHAIRMAN. The length of the submarine boat is what?

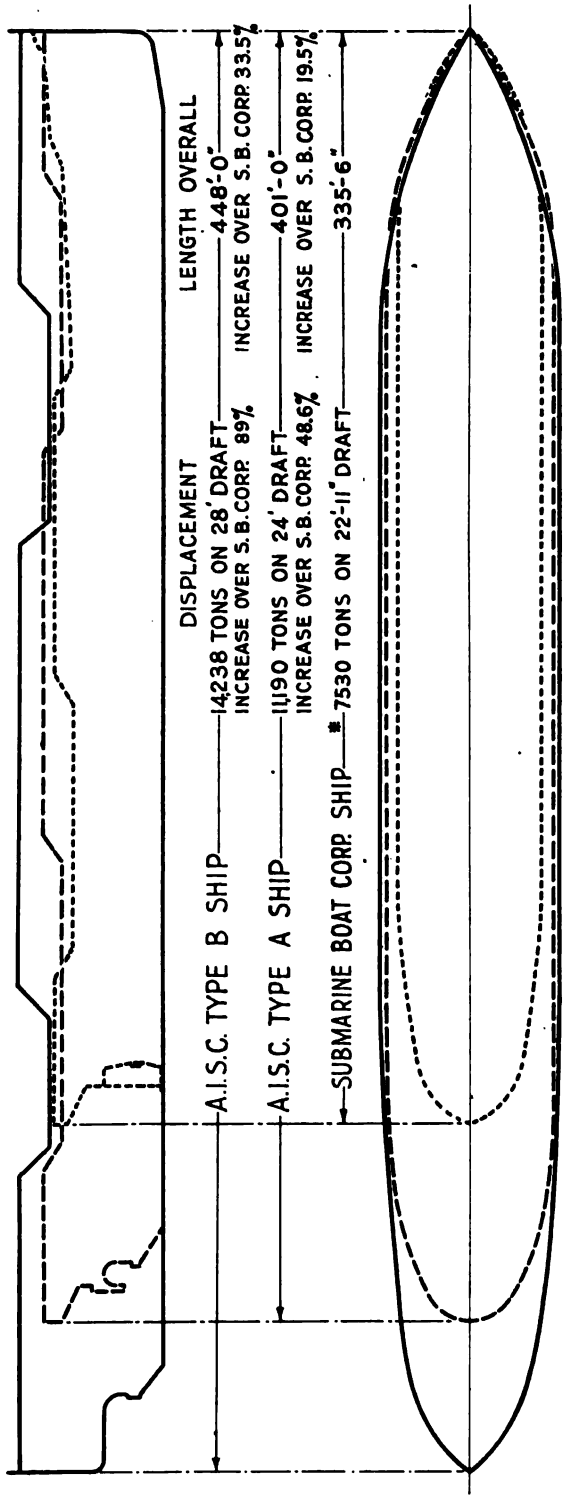
Mr. BRUSH. Three hundred and thirty-five feet and six inches. Our A boat is 401 feet, 7,500 tons, and our B boat is 448 feet and 8,000 tons.

Senator NELSON. How much water do they draw when loaded?

Mr. BRUSH. The draft of the submarine is 22 feet 11 inches; the draft of our A boat is 24 feet and of our B boat is 28 feet.

Senator VARDAMAN. Your B boat has a speed of about 15 knots?

Mr. BRUSH. Yes, sir.




A & B BOATS COMPARED WITH SUBMARINE CORPORATION BOAT

* Supplied by Mr Sadler, Naval Architect of U.S. Shipping Board 140 N. Broad St., Phila. Jan. 25, 1919.

The CHAIRMAN. Was that the draft light?

Mr. BRUSH. No; that was the draft loaded.

Senator NELSON. I notice from the models here that the bott is flat? [See illustrations, pp. 255 and 256.]

Mr. BRUSH. Yes, sir.

Senator NELSON. I had always supposed in order to make a ve steady in the water it needed a good deal of keel.

Mr. BRUSH. Senator Nelson, this ship was designed at a t when there was not only a scarcity of shipbuilders, but a scarcity a of material for constructing ships, and the ship was designed Mr. Ferris with a view of trying to use steel readily rolled not ship purposes but for other commercial purposes, similar to s British fabricated ships. We did make a bluff at curving a litt bit, but principally we tried to build a ship which would not requ the highest degree of fitting that they do require in old line s design and would lend itself to the fabricating principles of do a tremendous amount of this work elsewhere than on the island.

Senator NELSON. Do you think it is steady in the water?

Mr. BRUSH. All I can say in answer to that, Senator Nelson, that we had some real sea trial from Norfolk to Cristobal and did beautifully; but so far there is nothing to indicate that as designed there is anything wrong with it. It is about like one those flat-bottomed boats on White Bear Lake, Senator, and y know they will float.

In order that you may have some little conception, perhaps, of j what it means in an effort to assemble these ships, one of the proble which we have been confronted with in connection with our A sh has been that they were designed—the *Quistconck* was complet and the first 8 or 10 all had gun decks on, and we were directed j before she left to take that all off, which we did. In connection w the construction of the ships for war purposes there was a certa amount of reinforcing here on the bow and stern which has requir considerable change. Each change in a fabricated ship means complete change of the blue prints. If you change a rivet a quart of an inch it means changing our standard plan. Not a ship has gun or gun deck on it.

The first 50 A ships required 150,000 tons of steel, and every bit of that steel is now on the island except one-tenth of 1 per cent. The are approximately 9,000 pieces of steel, exclusive of liners, in one the A boats.

Senator VARDAMAN. How many ships have you the material th for now?

Mr. BRUSH. I am taking the first 50 A ships. The steel is on t ground at this moment for all of those ships, except we are short abo 150 tons.

Senator LENROOT. That, of course, includes the 14 practical completed, does it?

Mr. BRUSH. Yes, Senator.

Senator VARDAMAN. Have you the material for the other sh contracted for?

Mr. BRUSH. Yes, sir. I am going to give it all. There are approximately 9,000 pieces of steel, exclusive of liners, in each one of th A ships, and 50 ships require approximately 450,000 pieces of steel

That is, I am talking about the first 50 A ships as they will require 450,000 pieces and it is all there except approximately 2,000 pieces. That is, of the nearly half million pieces, we have all on the island except approximately 2,000 pieces. I am giving this, if I may, Mr. Chairman, because I have heard discussions in your committee here about what the status of material was, not only respecting our ships, but the ships in other yards. We are short for the first 50 A ships 2,000 pieces, including 314 pieces of rejected material at the plant of the fabricators which are being replaced, and that promptly. Those rejections were made by our inspectors at the plants of the fabricators, Senator Nelson, in reply to your question as to who at the plant rejected fabricated material because it was not well done, which cost us nothing, or cost the Government nothing; merely costs the fabricator.

For the 60 A ships there are 3,000 tons of steel in a ship, or 60 ships would amount to 180,000 tons. For the first 20 of the 60 A ships, we required 60,000 tons, and 45,000 tons or 75 per cent of that is on the ground or in transit. That is, it has left the fabricators, which is the same as on the ground to us.

Senator JONES. That is, of the 180,000 tons for the second 60 A ships there are 45,000 tons shipped.

Mr. BRUSH. Yes, sir. For the B ships there are 4,285 tons to a ship—and we were told to consider these ships in two groups of 35 each—35 ships equal 150,000 tons of steel, and we have received or there is in transit to the island 110,000 tons of that 150,000 tons, or 73 per cent, for the first 35 of the 70 B ships. We expect all the steel for the first 35 B ships to be there on or before the 1st of April. Approximately all of the steel for the first 35 B boats is either in the fabricating plants or en route to us.

In other words, in order to make myself clear, for the first 50 A ships the material is all there, practically everything. For the first 20 of the second 60 A ships 75 per cent of the steel is there. Then, going to your 70 B ships, of the first 35, 73 per cent of the steel is there. Now, considering the second 35 B ships, the last 35 of the 70 B ships, of the 150,000 tons required 65,381 tons have been shipped from the mill to the fabricator and 60,000 tons have arrived at the fabricator's and 11,441 tons fabricated and shipped to Hog Island. It is a question of delicate adjustment to determine whether or not any changes in our contract are or are not wise, and that is what your Fleet Corporation representatives are now doing.

When I spoke about the committee appointed by Director General Charles Piez, and which committee visited Hog Island yesterday, I did not mean to leave the impression that this committee was appointed for the sole purpose of considering changes that might be desirable in the ships we are building. What I meant was that Mr. Piez appointed this committee to take up the entire question of ships, and they simply happened to visit Hog Island yesterday, it being one of the plants they wished to visit.

Senator NELSON. In that connection, if we are not going on to complete this entire program or number of vessels, would it not be a mistake to get more material on the ground?

Mr. BRUSH. Yes, sir.

Senator NELSON. Don't that not to be determined before you [illegible] more material on the ground—whether you are going to [illegible] or how far you are going with the program?

Mr. BRUSH. Senator Nelson, of course the decision as to what program shall be should be made as promptly as possible. It is a very serious matter for us to try to stop the flow of material [illegible] we know what to stop; that is, I am very fearful [illegible] attempting to interfere with a schedule on which we have worked [illegible] months to get going. That has been one of the problems.

Senator JONES. That is a matter you really have nothing to do with?

Mr. BRUSH. No, Senator; it is none of my business.

Senator JONES. Your business is to carry out the contract you have with you are ordered to stop it?

Mr. BRUSH. Yes, sir.

Senator JONES. It is the business of the United States officials to determine what the policy is going to be.

Mr. BRUSH. Yes, sir; and if I should take the responsibility of slowing up that material and they should not make any change, I would be very much at fault for not complying with my contract to continue to build the ships as rapidly as economy and efficiency would permit.

Senator JONES. Your company is asked to carry on that contract?

Mr. BRUSH. Absolutely. We want to finish our job.

Senator JONES. You are going to push it just as far as you can until stopped by the Emergency Fleet Corporation?

Mr. BRUSH. Yes, sir; our contract requires us to push it as far as we can subject to instructions, since the armistice, not to work at overtime.

Senator VARDAMAN. The last 35 of those B ships you have no any material on the ground for?

Mr. BRUSH. Yes; we have 11,441 tons; we have 11,441 tons fabricated, either on the ground at Hog Island or in transit.

Senator JONES. What per cent is that of the total?

Mr. BRUSH. That is of the 150,000 tons?

Senator VARDAMAN. About one-third or about one-half?

Mr. BRUSH. Oh, less than one-half; 11,441 tons—not quite 8 per cent.

Senator VARDAMAN. I thought you said 70,000 tons?

Mr. BRUSH. No, Senator; all the steel that has been shipped from the mill to the fabricators is 65,381 tons, of which 60,000 tons have arrived at the fabricators.

Senator VARDAMAN. Nearly half?

Mr. BRUSH. Yes, Senator Vardaman.

Senator VARDAMAN. What is the difference in the cost of the material now and a year ago?

Mr. BRUSH. That material would cost at the time bought about 3¼ cents. I do not know what the price of steel is to-day, for shipping steel. Perhaps somebody else knows better than I.

Senator JOHNSON. Tell us approximately, please.

Mr. BRUSH. I can not answer that.

Senator JOHNSON. Is it lower or higher?

Mr. BRUSH. I do not think there is any question but what it is lower, Senator.

Senator VARDAMAN. Would it interrupt the course of your explanation if I should ask you now for a rough estimate of the cost of one of these ships, if you should take the contract at this time to build it?

Mr. BRUSH. It would not interrupt me to ask the question, but it would be pretty difficult to answer.

Senator VARDAMAN. Can you tell me what those ships are being built for in this country and in Europe?

Mr. BRUSH. No, sir; I can not.

Senator VARDAMAN. Are there any ships of this character being constructed on private account?

Mr. BRUSH. Not by us.

Senator VARDAMAN. Do you know of any?

Mr. BRUSH. You mean a fabricated ship, or a ship of this tonnage?

Senator VARDAMAN. This tonnage.

Mr. BRUSH. I can not answer that, Senator. I am a pretty busy Hog Island president, and my information in regard to other plants throughout the United States is very limited.

Senator VARDAMAN. The purpose of that question is to ascertain whether or not it would be prudent for the representatives of the American people to go ahead and construct ships that were expected to be used in time of war, at war prices, when we all know they could be built very much cheaper under present or after-war conditions.

Mr. BRUSH. I think, Senator, if I may present it informally, without trying specifically to answer your question, you are going to be governed largely in your decision as a Senator, and that your representatives are going to be governed very largely by whether or not material has arrived and has gone so far toward completion that its destruction or elimination would be a greater waste than to complete the ships.

Senator VARDAMAN. Of course you can not always reach an intelligent conclusion on that subject unless we can know what the ships will cost to build now.

Mr. BRUSH. But, Senator, do you not think in view of Mr. Piez's testimony before you on the general situation he was much better qualified to give you that information than I would be?

Senator VARDAMAN. The last time I asked him he did not have it.

Mr. BRUSH. I think the last time Mr. Piez was here I was in the room.

The CHAIRMAN. The hearing, I think, will show that statement. It has not been printed yet.

Senator VARDAMAN. What was it?

The CHAIRMAN. What it would cost if the contract were let now for ships of that character?

Senator RANSDELL. I do not want to interfere, but it looks to me like this gentleman does not know.

Senator VARDAMAN. I asked the question to find out whether he could tell us. If he can not he can say so.

Mr. BRUSH. I am very sorry, but I am not in a position to give you the information just at the present time.

Senator VARDAMAN. Very well, then go ahead.

Mr. BRUSH. I listened to Mr. Piez and I think he gives you [illegible] information on that.

The CHAIRMAN. A shipbuilder told me that the French were [illegible] to the British to build the ships, and another [illegible] told me that the Submarine Boat Co. was building ships [illegible] a ton. I do not know whether that is correct or not. That [illegible] a general idea.

Senator [illegible]. I would suggest that the witness proceed [illegible] the main line.

Mr. BRUSH. I [illegible] necessary to take the time of the [illegible] information in detail which does not interest [illegible] gentlemen who have not been to Hog Island [illegible] of what we have there or what the Government [illegible] number of pieces of steel and liners required for each A [illegible] for the B ship [illegible] and the total number of pieces [illegible] and liners for [illegible] ships is [illegible]. The rivets [illegible] on the island, for example, for the A ship number [illegible] over one-half million, and for the B ship [illegible]. The [illegible] number of rivets to be driven at Hog Island is [illegible], and [illegible] number of rivets to be driven in the fabricating shops is [illegible] a total of [illegible]. The weight of the rivets for 180 ships [illegible] tons.

Senator JONES. Does your chart show the amount of rivets you [illegible]?

Mr. BRUSH. That would not matter, because they are standard rivets. They come to us in tremendous quantities—by carloads. [illegible] you mean on the question of cancellation, how that would affect [illegible]

Senator JONES. Yes.

Mr. BRUSH. No; it would not, because they are standard. It [illegible] your fabricated steel that would cost you, that runs into money [illegible] quickly, but you could cancel the order to-morrow morning and [illegible] lose much money on rivets because they are all standard rivets.

As an evidence of the amount of the work and material there, you took the rivets that are going to be used on Hog Island [illegible] rolled them into one seven-eighths rivet you would have a [illegible] approximately 4,200 miles long. That will give you some con[illegible] tion of what we are really doing there. There is one feature, wh[illegible] perhaps may be of interest to you, or which was at least interesting [illegible] me, is that the area punched out for these rivets would equal 1,04[illegible] square feet, or approximately 24 acres. This is the total area of [illegible] rivet holes punched out of the steel.

Senator NELSON. That is just the holes?

Mr. BRUSH. That is just the holes, Senator Nelson. The actual st[illegible] used in the completion of this order is the equivalent of 20 times [illegible] steel used in the Grand Central Station, and 30 times the steel us[illegible] in the Woolworth Building and 1[illegible] times the amount used in t[illegible] Quebec Bridge and would produce 7 city miles of 20-story building[illegible] 100 feet deep. Enough [illegible]-pound rails could be produced fr[illegible] the steel to lay approximately 4,000 miles of standard, single-tra[illegible] railroad, or considerably more than the distance from Philadelph[illegible] to San Francisco.

In this connection I will submit the following statements on ship steel, machinery, and human-interest facts:

(The statements referred to are here printed in full, as follows:)

W-14-B.

JANUARY 29, 1919.

STEEL.

50 A SHIPS.

Three thousand tons steel, one 50 A ship. First 50 A, 150,000 tons (all on island except 150 tons, or one-tenth of 1 per cent); 9,000 pieces steel in 1 A ship, exclusive of liners; 50 ships equal 450,000 pieces (all here except 2,000 pieces, or four-tenths of 1 per cent); 314 pieces equal rejected material at plant of fabricators and is being replaced by them promptly. Balance in our own shops and being delivered as required.

60 A SHIPS.

Three thousand tons equal one ship; 60 ships equal 180,000 tons; for the first 20 of 60 A requires 60,000 tons; 45,000 tons, or 75 per cent, on island and in transit. All steel for balance in hands of fabricators. All for 20 60 A to be here March 20.

70 B SHIPS.

4,285 tons equal one ship; first 35 B ships equal 150,000 tons; we have received and in transit to date 110,000 tons, or 73 per cent; only 1,500 tons steel yet to be shipped to fabricators, but is not holding up fabrication of sequence material, expect all steel for first 35 B ships to be here by April 1.

Second 35 B ships require 150,000 tons; 65,381 tons shipped from mill to fabricator; 60,000 tons arrived at fabricator; 11,441 tons fabricated and shipped from fabricator.

Second 20 of 60 A ships require 60,000 tons; 55,254 tons shipped from mill to fabricator; 50,000 tons arrived at fabricator; 16,861 tons fabricated and shipped from fabricator.

Third 20 of 60 A ships require 60,000 tons; 14,465 tons shipped from mill to fabricator; 12,200 tons arrived at fabricator; 3,668 tons fabricated and shipped from fabricator.

*Recapitulation of hull steel requirements—Tons fabricated steel required to complete contract.*

| | Tons. |
|---|---|
| First 50 A ships | 150,000 |
| First 70 B ships | 300,000 |
| First 60 A ships | 180,000 |
| Total, 100 per cent | 630,000 |

*Fabricated steel on island and in transit.*

| | Tons. |
|---|---|
| First 50 A ships | 149,850 |
| First 35 of 70 B ship | 110,000 |
| Second 35 of 70 B ships | 11,441 |
| First 20 of 60 A ships | 45,000 |
| Second 20 of 60 A ships | 16,861 |
| Third 20 of 60 A ships | 3,668 |
| Total, 53.5 per cent | 336,820 |
| Balance to come, 46.5 per cent | 293,180 |
| Total required, 100 per cent | 630,000 |

[illegible]

[illegible]

[illegible]

Mr. BRUSH. I do not want to bother you with these figures but some of you gentlemen have not been to the island and I doubt if many people appreciate the magnitude of it. The shell-plate laps equal 25 miles, all of which is double riveted. That is where a part of your steel plate laps over the other. The daily production of blue prints of all kinds is about 10,000, caused in part by the tremendous number of changes in design, some of which changes are being caused by changing the ships since the armistice to make them more suitable for peace-time conditions, which is all beyond our control. This is not any criticism of the Fleet Corporation. Up to the present time all of these changes were necessary. Our machinery and equipment consists of 180 turbines and 750 water-tube boilers to go into the ships, with a combined horsepower of 750,000, which is more than is consumed in the entire Chicago district. Three thousand one hundred and thirty pumps are required for the 180 ships. In order to give you some idea of the capacity of these pumps, if they were operated simultaneously they would pump 2,275,000 gallons per minute, which is greater than the capacity required to provide water for the entire population of the United States, figured at 30 gallons per day per capita. The sanitary system required for the 180 ships is sufficient to completely equip 6,000 rooms.

Senator VARDAMAN. You have not figured as to the height of the pile of silver dollars that has been expended to bring all that about?

Mr. BRUSH. I should be happy to do that.

Senator VARDAMAN. It might be interesting to the people of the United States who must pay the bills to know something about the cost.

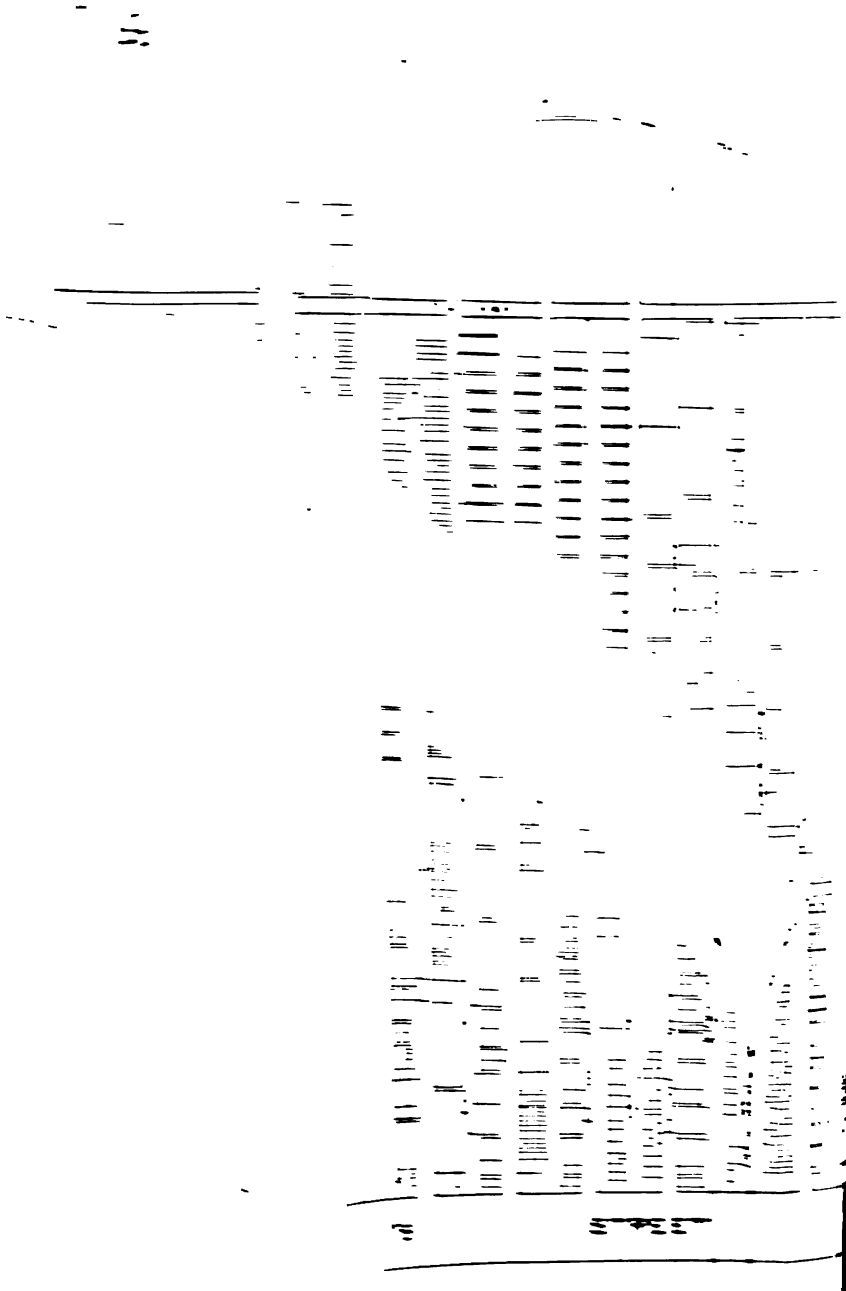
Mr. BRUSH. I should think it would be very interesting, but it would be equally interesting to know these other facts.

In order to fabricate these ships in the manner in which they should be fabricated, we must provide immense storage facilities. I will show you a plat of our so-called yard C exactly as it stands to-day. [See illustration, p. 284.]

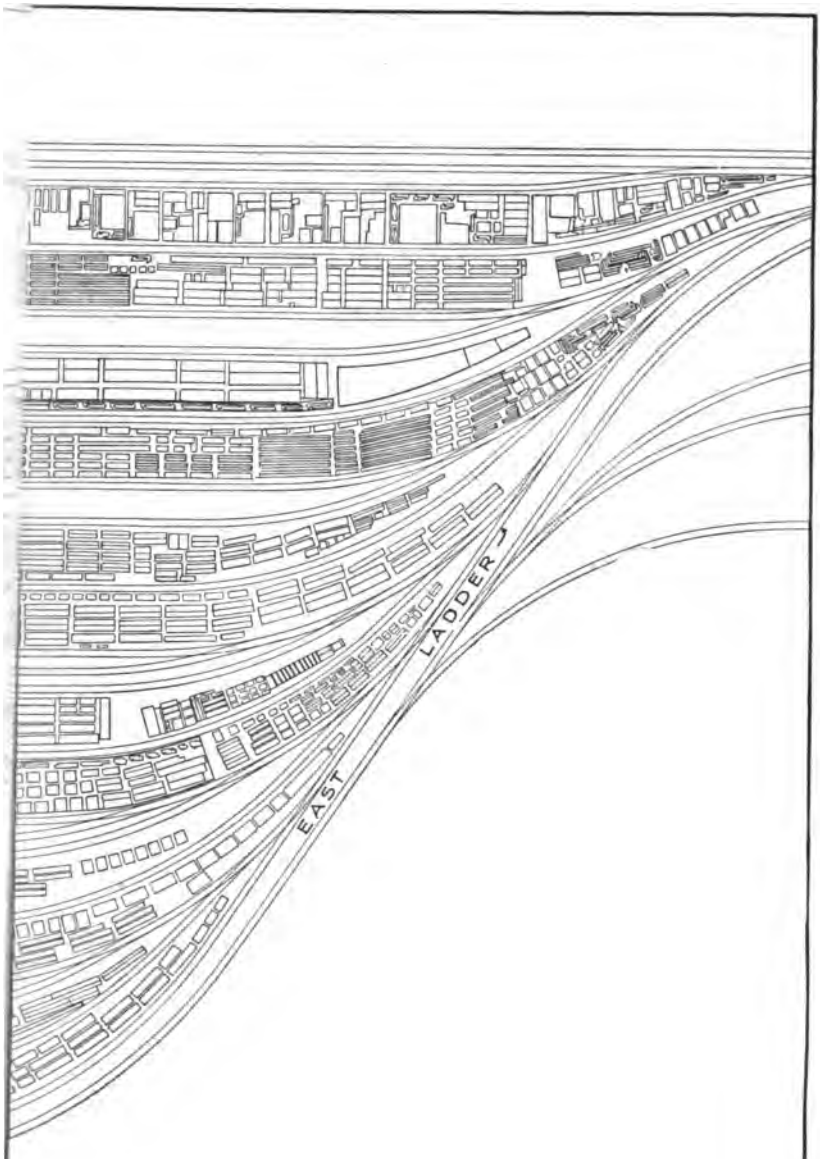
There are approximately 3,000 certified locations on that plat, and on each specified plat is a number, which number corresponds to the piece mark of the material in the catalogue, which piece marks are also shown in a sequence catalogue showing the sequence of erection. Each piece of material as it arrives is placed on a specific plat designed for it, so that it can be readily found when wanted, and the fabrication of your ship can proceed by a predetermined schedule of sequence of erection.

This is what we call yard A [see illustration on insert between pp. 284 and 285], which is the steel storage yard for the A ships. This is an exact plat of the steel yard for the A ships as it now stands, and in this yard there are approximately 9,000 different certified locations for storage of hull steel. There is an acreage of 28.8 and a trackage of 8.7 miles.

In order that you may be familiar with the amount of material on hand at Hog Island, I present herewith two photographs of steel storage yard A which were taken on Monday, January 25th last. [See illustrations, pages 286 and 287.] If you will glance at these pictures you can readily see—and you have asked this very question,



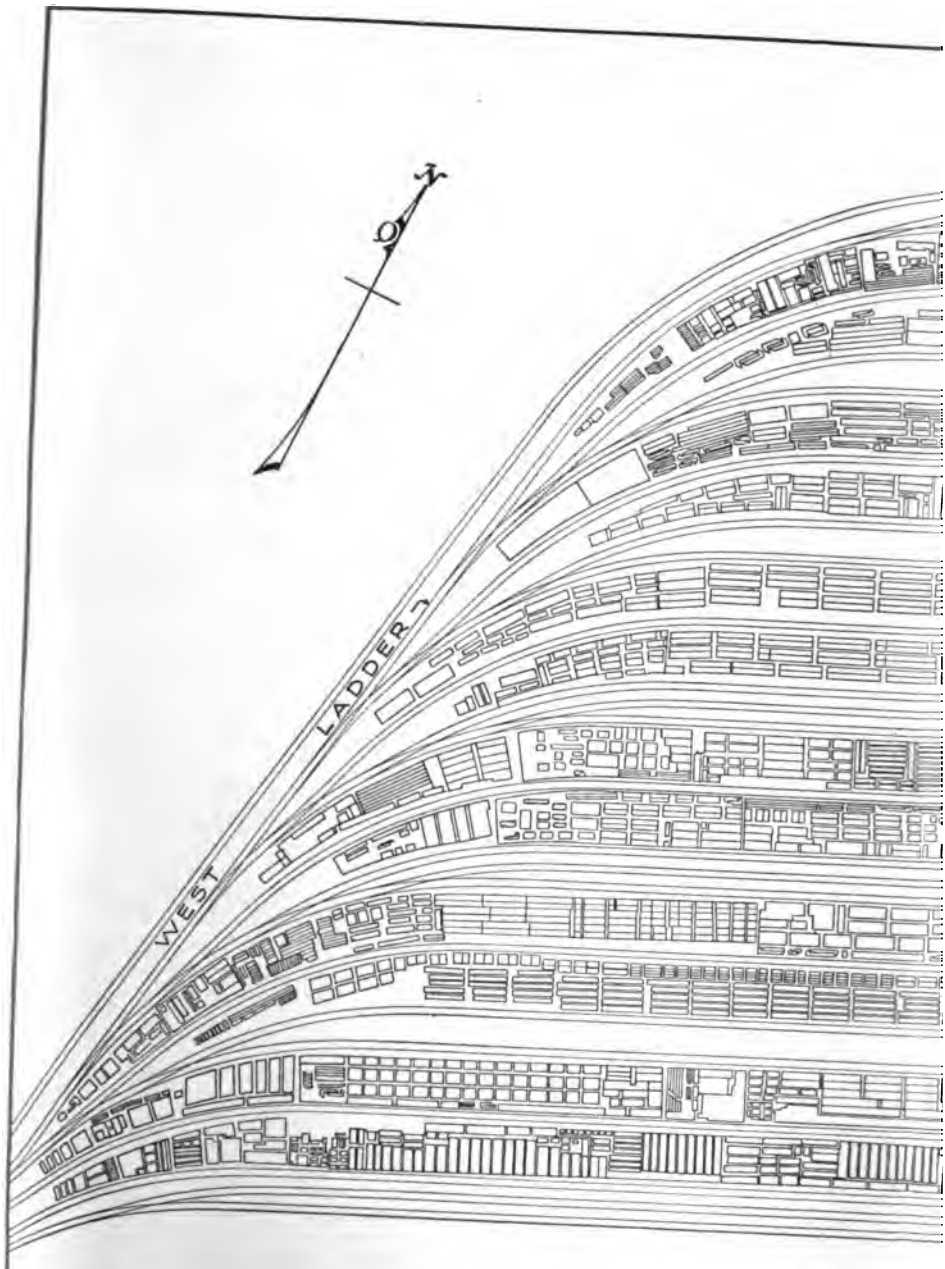
MATERIALS
YARD "C"




D "A"

ARRANGEMENT OF MATERIALS
IN STORAGE YARD "C"

SCALE-FEET




ARRANGEM

Senator Jones—that the work can not be stopped without a large loss on a great deal of it.

Senator JONES. How much more steel have you on hand than necessary to carry on the work as rapidly as planned?

Mr. BRUSH. We accumulated as much fabricated steel as we could, Senator. They apparently scheduled this steel to come to them in some sequence so that it could be used consistently.

Senator JONES. So that they have not an unnecessary amount on hand?

Mr. BRUSH. I do not think they are open to criticism for the amount they have on hand. Experience has shown that it would have been better to have had the steel come to them in a little better sequence, but I will show you in a moment how they worked at it to get their steel, and, of course, I was not concerned at the time; but my impression is, from a close analysis, that they did mighty well under the circumstances under which they had to work. In other words, they had to pull the raw steel from 38 mills to 88 fabricating plants, as far west as Kansas City, and Minneapolis, and as far north as Montreal, Canada, because the steel fabricators in the East could not fabricate it. Of course, it is plainly very difficult to cause many thousands of pieces for one ship to come from 88 different fabricating shops, and have them come in their proper sequence, and not have too many of one kind and not enough of another.

I will now show you a series of photographs, and will only comment upon them in passing.

This photograph is steel yard F [see illustration, p. 288], which is the overflow storage yard for yards A and B. That is the way it comes from the fabricator. These were punched and fabricated when they came to us.

This shows the steel yard B, in which we store the steel for the B ships, and that is where it is unloaded as it comes from the fabricator to us. This B yard contains 44.3 acres of storage space and is served by 11.5 miles of railroad track [see illustrations, pp. 289 and 290].

This photograph shows the pipe yard [see illustration, p. 291], and the other two photographs show the machinery storage portion of yard C; and there are the steam winches that are on the ground [see illustrations, pp. 292 and 293].

Senator JONES. You have the winches there for how many ships?

Mr. BRUSH. We have all of the winches for the first 50 A ships—500 in all—10 to a ship. We have none of the winches for the 60 A ships. We require 600—10 to a ship. For the 70 B boats we require 14 to a ship—total of 980, of which 864, enough for 62 ships, are on the island.

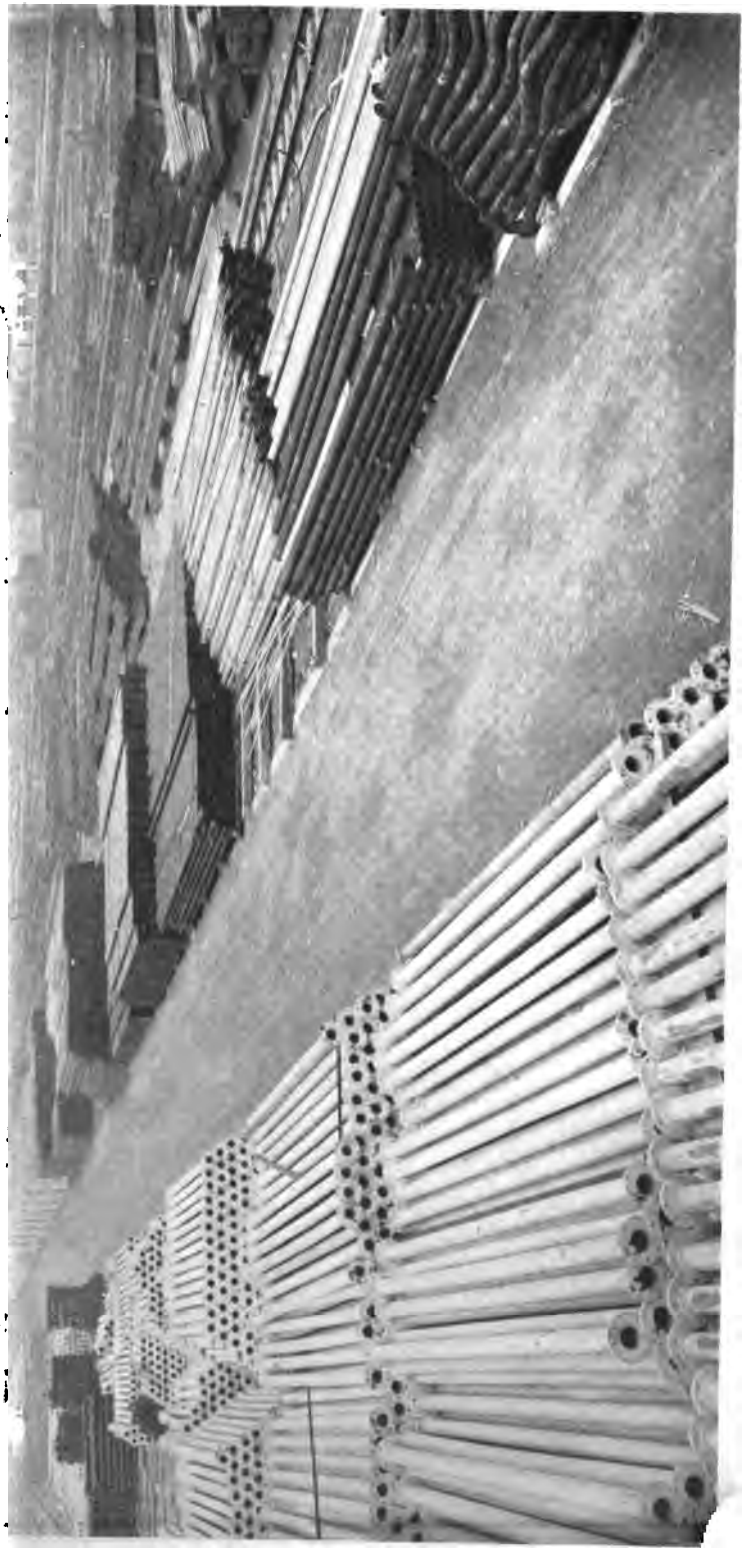
Senator JONES. What was the necessity of getting the winches there for all the ships?

Mr. BRUSH. They should not have been there, Senator. I have not had time to put myself in the position to know, but to the extent that you have an unnecessary number there it should not have been done. Mr. Levy calls my attention to the fact that they are standard winches, and if required by any of the other shipyards, are subject to the orders of the Emergency Fleet Corporation.

Senator JONES. That is, you mean they would not be a loss?

HULL STEEL STORAGE YARD "A."

HULL STEEL STORAGE YARD "B."



PIPE YARD, IN STORAGE YARD "C."

HULL FITTINGS IN STORAGE YARD "C."

Mr. BRUSH. No; they could be used to-morrow, Senator, on pra-tically any ship. There is no loss in this sort of thing at all, and th- was one of the many items purchased for us by the Fleet Corpor-tion. We simply advised them of our scheduled program and wh.. we needed, and they furnished to us as they saw fit.

These photographs show yard D, located behind the wet basi. where we store the outfitting that is usually placed on the ships aft. they reach the wet basin. [See illustrations, pp. 295, 296, and 297

Senator JONES. Are they standard [indicating life rafts]?

Mr. BRUSH. Yes, sir.

Senator JONES. Are these standard, too [indicating anchors]?

Mr. BRUSH. Yes, Senator.

The CHAIRMAN. What are those piled up [indicating life rafts]?

Mr. BRUSH. They are life rafts, Senator. This other picture [i. dicating] shows the turbine engines in storage.

The CHAIRMAN. Where are the life rafts made?

Mr. BRUSH. The life rafts for the first 50 A ships were made b. the Welin Marine Equipment Co., Long Island City, N. Y. We r quire 118 or three for the first 4 A boats and 1 each for the remai ing 106 A boats, and all are on the island. The life rafts for the 6 A ships are being made by the Racine Manufacturing Co., at Rac Wis., and the life rafts for the 70 B ships by the Welin Marine Equi ment Co., Long Island City, N. Y.

The CHAIRMAN. Are they made of steel?

Mr. BRUSH. They are two cylindrical steel tanks inclosed in framework of light wood.

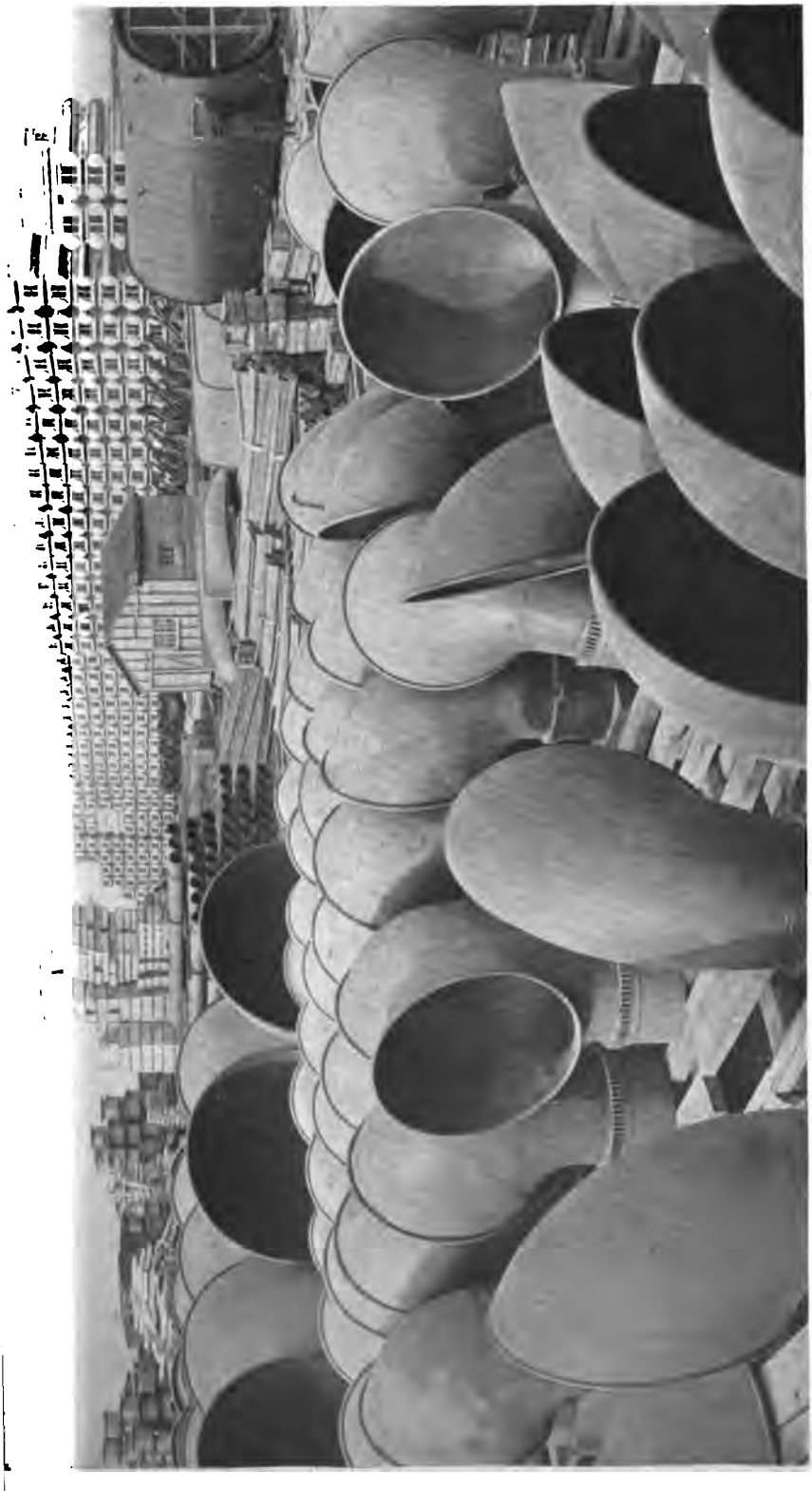
Those are anchors. They are all bought by the Fleet Corporati

The CHAIRMAN. Are they standard, too?

Mr. BRUSH. Yes, sir; all standard. This is yard E [see illustr. tion, p. 298], where we store what we call our steel liners in prop order according to number. A liner is simply a small piece of st that is usually placed where two pieces of steel are riveted togeth. Generally speaking, we require for each ship as many pieces liners as we do pieces of hull steel.

This photograph shows a covered storage platform in rear of war house No. 20, where are stored the pipe fittings of 3 inches and ov [see illustrations, p. 299]. I do not want to take your time, but wanted to give you an idea of what was there. This other pictu [indicating] is a typical wooden warehouse, of which we have [see illustration, p. 300].

These two photographs [see illustrations, pp. 301 and 302] sh the interior and exterior of our reinforced concrete warehouse, wh is 172 feet wide and 400 feet long, four stories high, with a ste railroad track in the center. We originally decided to build about additional wooden warehouses, but on conferring with the Emerge Fleet Corporation, both they and ourselves decided it would cheaper and more desirable to build this large building, which wo be a very desirable building for any purpose. This photograph illustration, p. 301] is the interior of the same building. This, Se tor Ransdell, is the exterior of that same building [see illustrati p. 302]. Incidentally, when the Fleet Corporation and our pe decided to build this building, they asked for bids and we m an estimate and it was lower than any bid received. We built and it is being built for less.

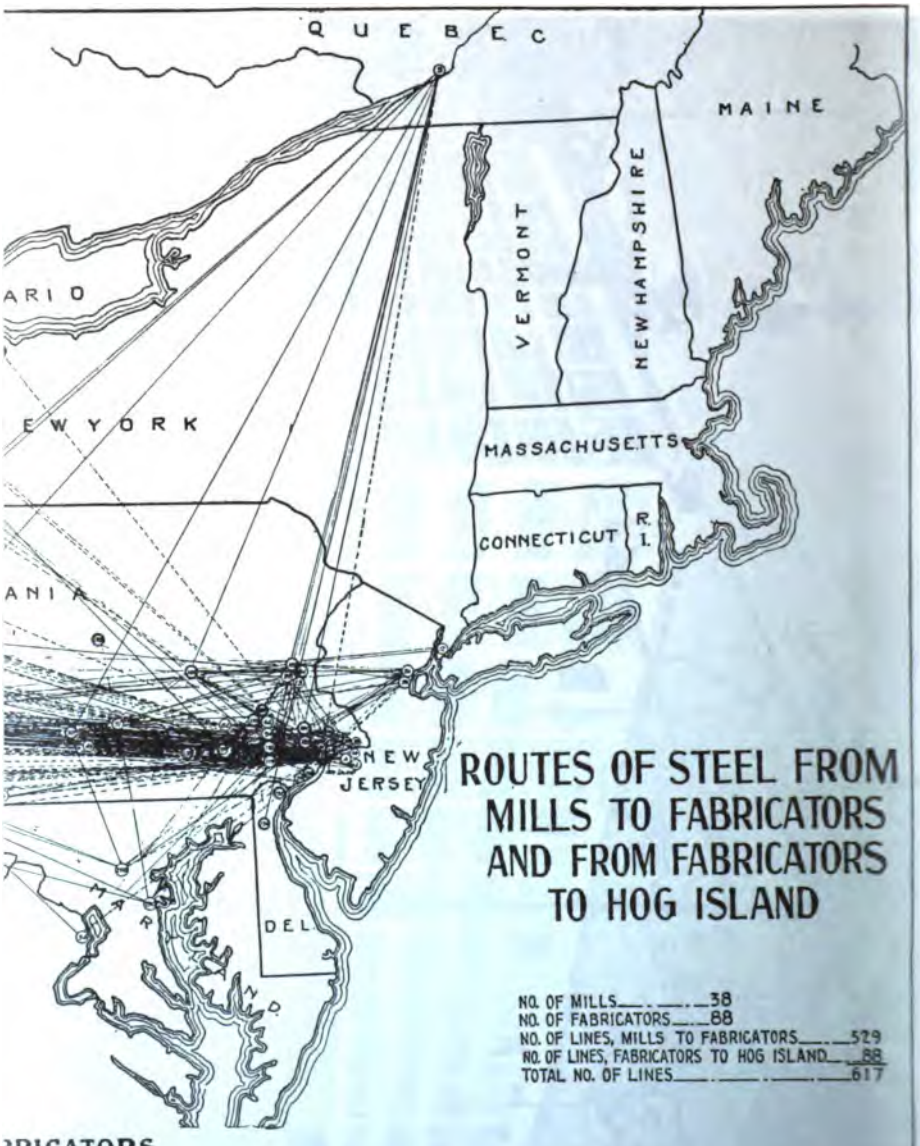


HULL FITTINGS, STORAGE YARD "D."

TURBINES AND GEARS STORAGE YARD "D."

PIPE FITTINGS STORAGE REAR OF WAREHOUSE NO. 20.

INTERIOR OF CONCRETE GENERAL WAREHOUSE (NEARING COMPLETION).




## BRICATORS

| | | | | | |
|---|---|---|---|---|---|
| 44 | A.I.S.C. | HOG ISLAND PA. | 68 | PHOENIX IRON WORKS CO | MEADVILLE PA. |
| 45 | PENNSYLVANIA ENG. WORKS | NEW CASTLE PA. | 69 | HASKELL & BARKER CO. | MICHIGAN CITY IND. |
| 46 | KING BRIDGE CO. | CLEVELAND OHIO | 70 | HAMMOND IRON WORKS | WARREN PA. |
| 47 | RICHMOND & KEMP | PHILADELPHIA PA. | 71 | LEBANON BOILER WORKS | LEBANON PA. |
| 48 | EAST IRON & MACH. CO. | LIMA OHIO. | 72 | | |
| 49 | PARISH MFG CO. | DETROIT MICH. | 73B | STANDARD STEEL CAR CO. | BUTLER PA. |
| 50 | DAVID LUPTONS SONS CO. | PHILADELPHIA PA. | 73C | " " " " | CURTIS BAY, MD. |
| 51 | WARREN CITY TANK & BOILER CO. | WARREN OHIO. | 73M | " " " " | NEW CASTLE PA. |
| 52 | BIRDSBORO FOUNDRY & MACH. CO | BIRDSBORO PA. | 74 | RALSTON STEEL CAR CO. | COLUMBUS OHIO. |
| 53 | ALLEN IRON & STEEL CO. | PHILADELPHIA PA. | 75A | PRESSED STEEL CAR CO. | ALLEGHENY PA. |
| 54 | CAMDEN IRON WORKS | CAMDEN N.J. | 75H | " " " " | HEGEWISCH ILL. |
| 55 | J. J. DAVIES & CO. | PHILADELPHIA PA. | 75M | " " " " | McKEES ROCKS PA. |
| 56 | BERGEN POINT IRON WORKS | BAYONNE N.J. | 76 | NATIONAL CAR CO. | HAMILTON ONT. CANADA |
| 57 | HALE & KILBURN CORP. | PHILADELPHIA PA. | 77 | HETZEL ST. FORM & IRON CO | WARREN OHIO. |
| 58 | STUPP BROS BRIDGE & IRON CO. | ST. LOUIS MO. | 78 | LEADER IRON WORKS | DECATUR ILL. |
| 59 | HUBBARD STEEL FOUNDRY CO. | EAST CHICAGO IND. | 79 | PENN BRIDGE CO. | CLAYSVILLE PA. |
| 60 | BLAW-KNOX CO. | PITTSBURG PENNA. | 80 | BLAW-KNOX CO. | PARK VIEW, PA. |
| 61 | THE BROWNELL CO. | DAYTON OHIO. | 81 | J. S. THORN & CO. | PHILADELPHIA PA. |
| 62 | McCUTTIC-MARSHALL CO. | POTTSTOWN PA. | 82 | ST. JOSEPH STR. ST. CO. | ST. JOSEPH MO. |
| 63 | McGREGOR-McINTIRE CO. | TORONTO, ONT. CANADA | | | |
| 64 | McCLINTIC-MARSHALL CO. | RITTER CONLEY CO. LEETSDALE PA | | | |
| 65 | COLUMBUS STR. STEEL CO. | COLUMBUS OHIO. | | | |
| 66 | T. L. HUGHES | ROCHESTER N.Y. | | | |
| 67 | CHAMPLER & TAYLOR CO. | INDIANAPOLIS IND. | | | |

ORS TO HOG ISLAND.

This photograph [see illustration, p. 304] is what we call our Records Building. In this building we maintain our records of all material, as well as our time-keeping records, and also store the tracings of all our blue prints, and it is necessary to provide a fireproof building for this purpose—anything else would be a serious mistake. This photograph [see illustration, p. 305] shows a section of our time-keeping office in the Records Building.

In order that the committee might realize the huge problem of moving our raw steel from 38 steel mills to 88 fabricators, and from the 88 fabricators to Hog Island, I have prepared and now desire to present a chart showing the 617 different routes this steel must move over [see illustration on insert between pages 302 and 303].

Our hull fabrication department forwarded the schedules for ship steel to the director of steel supply of the War Industries Board at Washington, who secured the allocation of the steel from the American Iron and Steel Institute, and instructed us to place our orders with the mills which they selected to roll the material. Priority rating was for a time secured by direct application to the War Industries Board and later was placed on the automatic priority list.

Our people had to go out and hunt for fabricators to fabricate the steel; the locations indicated by a number over 100, showing the rolling mills [see illustration on insert between pages 302 and 303], and the locations indicated by numbers under 100 are the fabricating mills. After the people at Washington allocated the steel to the different rolling mills to go to the 88 fabricating plants, our people had to go out in the open market and contract with the fabricators for fabricating the steel.

We had to have a definite schedule laid out and had to instruct that it be routed over a specific railroad, both for the movement from the steel mills to the fabricators' plants and from the plants of the fabricators to Hog Island. There are 617 of these routes for that steel to cover, from 38 mills to 88 fabricators and from 88 fabricators to Hog Island, and you can see where the steel went to and from. We went as far West as Kansas City, Omaha, Minneapolis, and St. Paul, in the Chicago district and the Ohio district, and as far up as Montreal into Canada and two other places in Canada, and, of course, into Detroit and Toledo.

The CHAIRMAN. Where did you move it from?

Mr. BRUSH. It moved from this district [see illustration on insert between pages 302 and 303]. It moved from the rolling mill district to all these fabricating plants and back to Hog Island.

Senator VARDAMAN. Where is the rolling-mills district?

Mr. BRUSH. The 38 rolling mills that furnish raw steel to our 88 fabricating plants are located as follows [reading]:

| | |
|---|---|
| Pennsylvania | 22 |
| New York | 2 |
| Illinois | 5 |
| Ohio | 6 |
| Indiana | 1 |
| Delaware | 2 |
| Total | 38 |

Senator JONES. You have not been called upon at any time to pass upon the wisdom of the plan in the beginning?

SECTION OF TIMEKEEPING OFFICE—RECORDS BUILDING.

Mr. BRUSH. No, Senator Jones; I have been informed by the men, both the representatives of the Fleet Corporation and the men in charge of the property, it was either that or no steel; that we could not get the fabricators in this district to do very much fabricating.

Senator JONES. You have not been called upon on that?

Mr. BRUSH. No, sir.

Senator VARDAMAN. It necessarily involved a scarcity in the steel?

Mr. BRUSH. Yes, sir. There is no question about it, Senator. That situation, since the armistice was signed, is now gradually changing, and we are taking advantage of it, with the cooperation of the Fleet Corporation, by pulling that steel in and using the car plants in the Pittsburgh district, like the Pressed Steel Car Co. and the Standard Steel Car Co., and the big plants of the McClintic-Marshall Co., which were provided by the Fleet Corporation through the special efforts of Admiral Bowles, and the other plants that now have an opportunity to do this work were at the time we tried to get them to undertake to do it without the proper facilities, so as promptly as we came under these conditions we have combined to take advantage of them.

Senator VARDAMAN. Drawing in the area, the cost is less, I understand?

Mr. BRUSH. Yes, Senator.

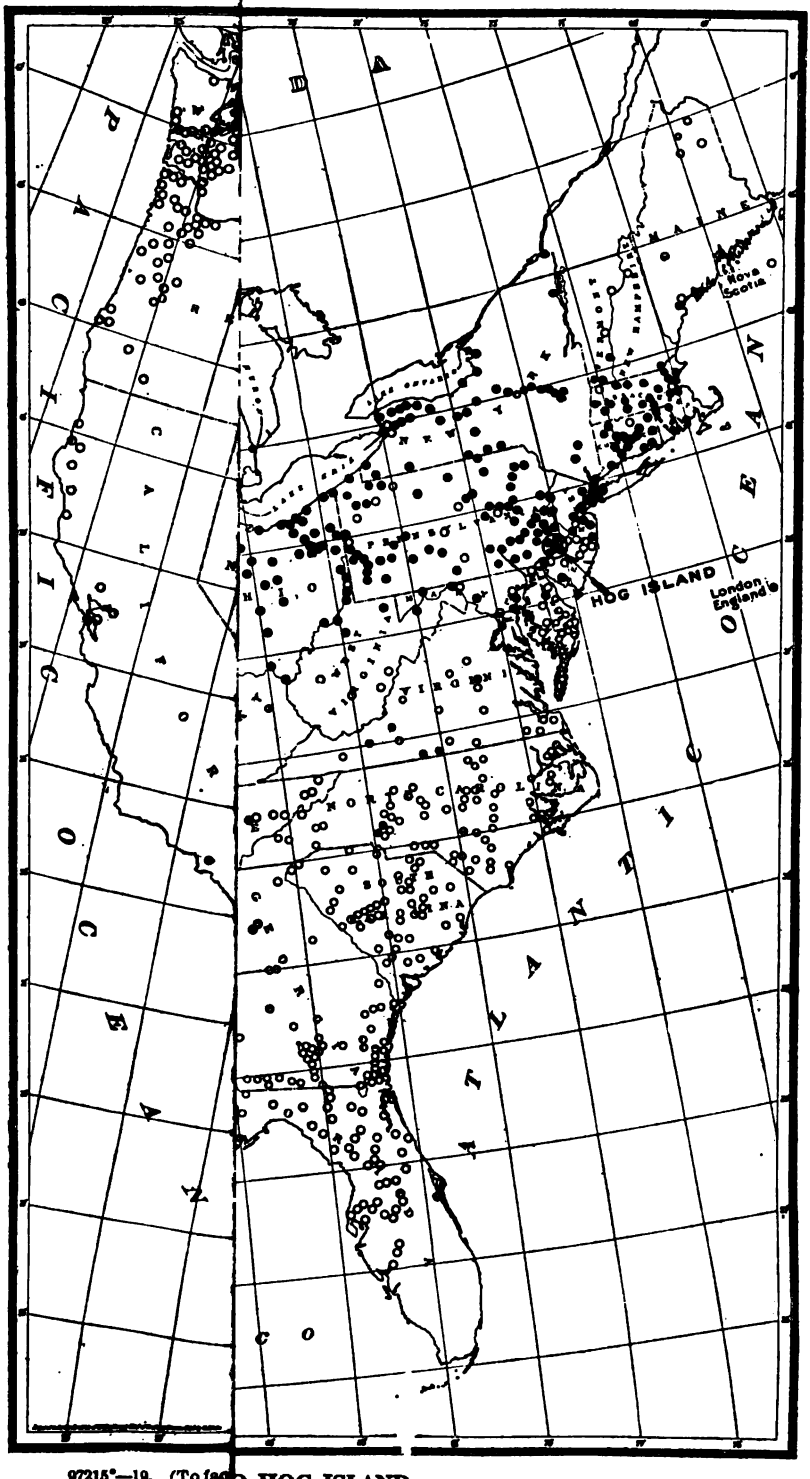
Senator NELSON. You saved freight both ways?

Mr. BRUSH. Yes, sir; we saved freight both ways, and that is being done with the utmost cooperation and teamwork of the Fleet Corporation and representatives from our company. In order to show you some of the problems that we went up against in order to get this material, this map [see illustration on insert between pages 306 and 307] shows the places where the lumber and all material for the plant and the ships (other than hull steel) was purchased. We did not buy all of the lumber ourselves—we were required to purchase practically all of our lumber through the Fleet Corporation.

All Government shipbuilding plants that required lumber, placed their order with the Fleet Corporation, and the Fleet Corporation undertook, through the Lumber Bureau at Washington, and that bureau through the various so-called emergency lumber bureaus which existed through the South and West, to distribute the orders between the different mills in a fair and proper manner. In most instances we received only information as to where the lumber which we had ordered from the Fleet Corporation came from, which information came to us from lumbermen located in these several emergency bureaus on the Pacific, the Gulf, and South Atlantic coasts weeks and months after the material had been shipped. It was usually the rule for lumber to arrive at Hog Island on which we had absolutely no information. All we could do was to take the number of the car and the description and quantity of the lumber and check the car back against the bill of lading which we received later, and, when we received the invoice from the shipper, check it back against our order and match up the record of the arrival of the car and description of contents with the bill of lading and invoice.

Senator NELSON. What do the open circles and black dots indicate?

Mr. BRUSH. The open circles indicate lumber purchases and the black dots miscellaneous material for both plant and ship; the open circles and the black dots indicating where the material covered by the 66,631 orders came from.




97215°—19. (To fac

O HOG ISLAND.

Senator RANSDELL. I notice a great deal of the lumber is from the Great Lakes district and much from the Pacific coast.

Mr. BRUSH. Not much lumber from the Great Lakes, Senator Ransdell.

Senator RANSDELL. You have some open circles there.

Mr. BRUSH. We only received lumber from 24 mills in the Great Lakes district, as follows: Three mills in Michigan, 20 mills in Wisconsin, and 1 mill in Minnesota, Senator Ransdell.

Senator RANSDELL. I see a number of open circles there.

Mr. BRUSH. Yes, Senator Ransdell; the 24 shipping points I just mentioned.

Senator VARDAMAN. The open circles indicate where the lumber came from?

Mr. BRUSH. Yes, sir. Most of it came from the South.

Senator RANSDELL. Yes, sir; I know we have more lumber there than any place, except in Senator Jones's country.

Mr. BRUSH. Those are the specific points at which purchases were made on our account.

At the time of the last liberty-loan campaign, our locomotive crane boys placed 45 of their 70 locomotive cranes together and made a picture of them [see illustration, p. 308]. These men were trying to carry on a campaign of their own.

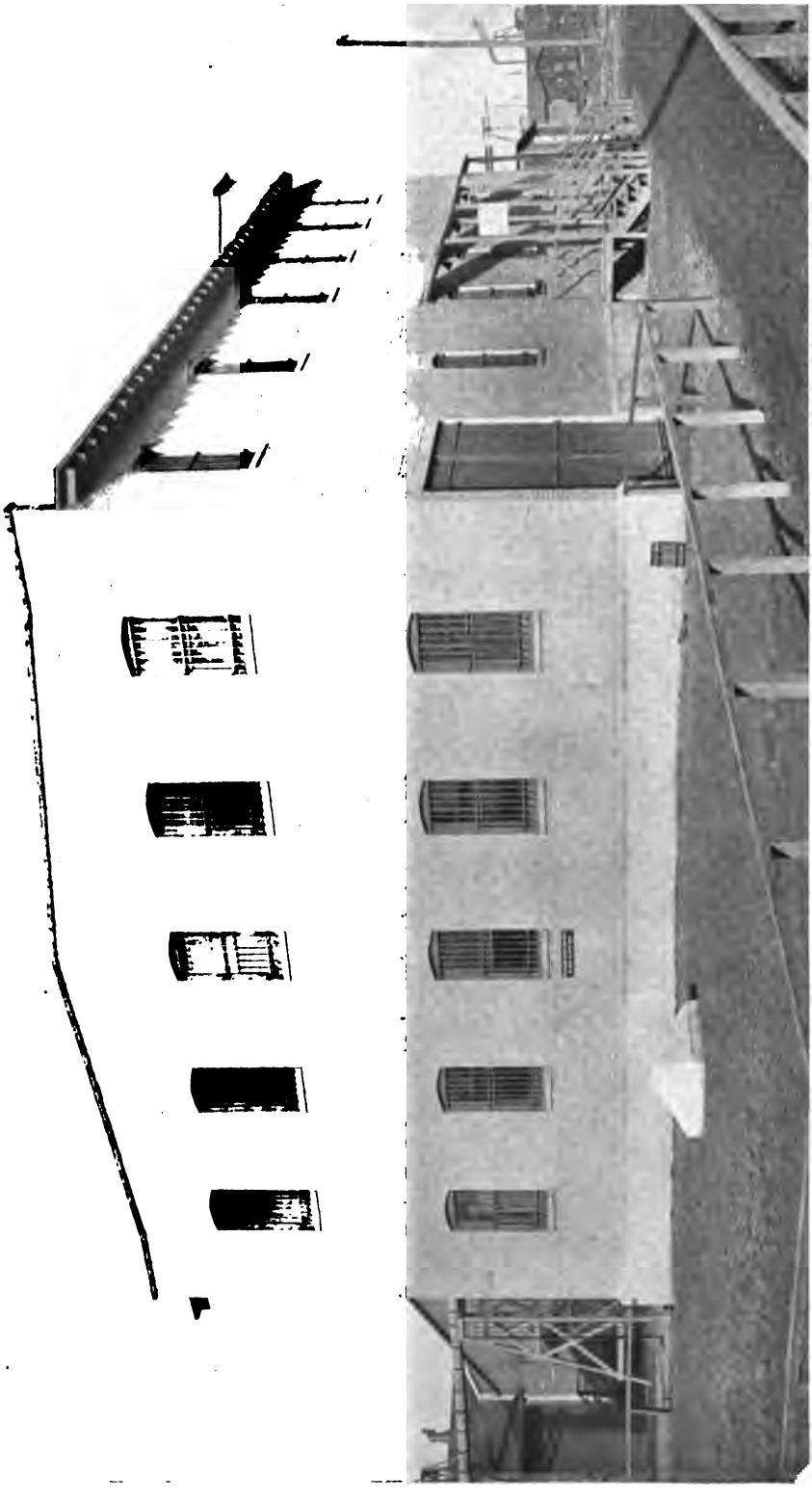
This is the bank building, which is a permanent building [see illustration, p. 309]. Our pay roll being approximately $4,000,000 a month—all labor being paid off in cash—it was impossible, of course, to build other than a fireproof, permanent building for that purpose.

This photagraph shows the inside of our plate and angle shop [see illustration, p. 310]. They built these shops with the idea (there never having been fabricating shipyards built before so far as we know on any such plan as these) that there would be a substantial amount of correction work to be done. As a matter of actual fact, the fabricating work has come in such excellent shape that in order to avail ourselves of the shops, we are actually doing fabricating ourselves on the ground, which it was not originally anticipated we would do, because the amount of correction work was almost nil.

This photograph [see illustration, p. 311] shows the shop building group, and they are of steel frame construction covered with corrugated iron; are fireproof, and I inquired about that immediately and found it was cheaper to erect a building of this size of that material than to attempt to build it of wood and it gives us a permanent building.

When it came time to install telephones, the telephone company would not permit their switchboard to go into a frame building, and our telephones are the "nerve center" of our entire job, and it would have been extremely unwise to have permitted a condition which might make possible its loss by fire. Therefore this brick telephone building was built [see illustration, p. 312].

I will not bother you talking about these photographs further, but they do show in a very graphic manner just what the boys were up against in building this plant during Arctic weather, and for that reason it would please me if the committee would find it consistent to print them in the record. [See illustrations, pages Nos. 313 and 314 and pages 316 to 340.] That was on September 20, 1917 [see



BANK BUILDING.

SHOP GROUP IN BACKGROUND.

CUTTING THE BRUSH FOR SURVEY LINES, SEPTEMBER 20, 1917.

illustration, p. 313]; that is a year ago last September. These photographs are in chronological order and the dates will follow along consecutively.

This photograph shows one of the concrete ways built during the winter [see illustration, p. 314]. Of the 50 ways there were 10 made of concrete. This photograph is looking down at exactly the same place as the picture I showed you on way No. 1 on which the ship *Quistconck* was built, and this is where ways 1 to 10, inclusive, are located [see illustration, p. 316].

The CHAIRMAN. You might explain in a general way the extent of the water and sewerage system there.

Mr. BRUSH. It is too long a story to take your time, but our sewerage system was a tremendous job. [See illustration, p. 319.] We had to drain the whole island and a territory near the island, which was three times the area of the island itself. We had to construct on the island not only a modern sewerage system, but a modern system for treating our sewage before it discharges into the Delaware River. We take our water for drinking and other purposes out of the Delaware River a short distance below where the untreated sewage from the city of Philadelphia is discharged into the river; purify it through a modern, large-capacity, quick-purification system and notwithstanding the condition of the water when we take it out of the river, the health authorities of the State of Pennsylvania require us to treat our sewage before it goes back into the river, for which purpose we have a modern plant, which pumps all sewage into two large Imhoff tanks, where the solid matter is removed and spread out on drying beds to dry and later on is hauled away, and the liquid flows through a modern self-operating chlorinating plant and then into the river. It is a common expression on the island that we put the water back into the river in better condition than it was when we pumped it out. We have not had a single epidemic or serious sickness of malaria, typhoid, or any water-borne disease or anything of that kind since they started the plant.

The photograph I now show you [see illustration, p. 324] gives you some conception of how they worked down there a year ago. This shows the dredges working. [See illustration, p. 321.] On the 20th day of September, 1917, they were making their first survey and cutting the brush you see there [see illustration, p. 313] and laid the keel for the first ship on the 12th of February, 1918. I do not care what the work or circumstances were, they performed a miracle, no matter how they did it, to accomplish it.

This is an airplane view [see illustration, p. 326] east from the main wharf on January 25 a year ago—that is, a year ago last week. This is a year ago to-day, January 30, 1918 [see illustration, p. 327], we then had this condition of ice and snow and low temperature. To date we have delivered 5 ships of the 14 launched. You could not do it for nothing.

Senator VARDAMAN. You have not, either.

Mr. BRUSH. You bet we have not.

Senator JONES. But you do not say you could not have done it somewhere else?

Mr. BRUSH. You mean, have built the same yard somewhere else?

Senator JONES. No; I mean delivered more ships by having the yards located at different places.

WAYS GROUPS NOS. 3 AND 4, LOOKING EAST, DECEMBER 2, 1917.

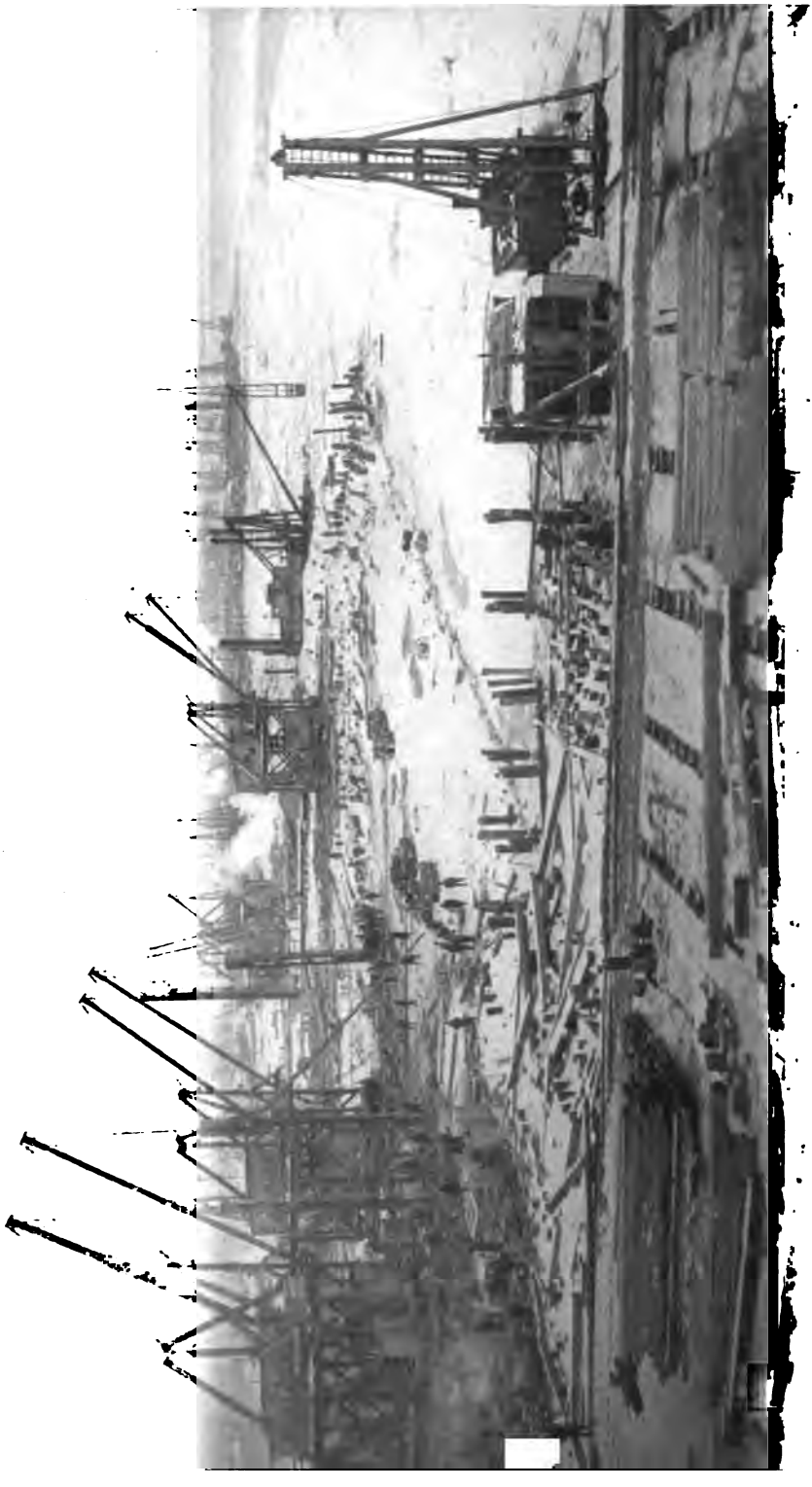
MAIN WATER AND SEWERAGE TRENCH DECEMBER 22, 1917.

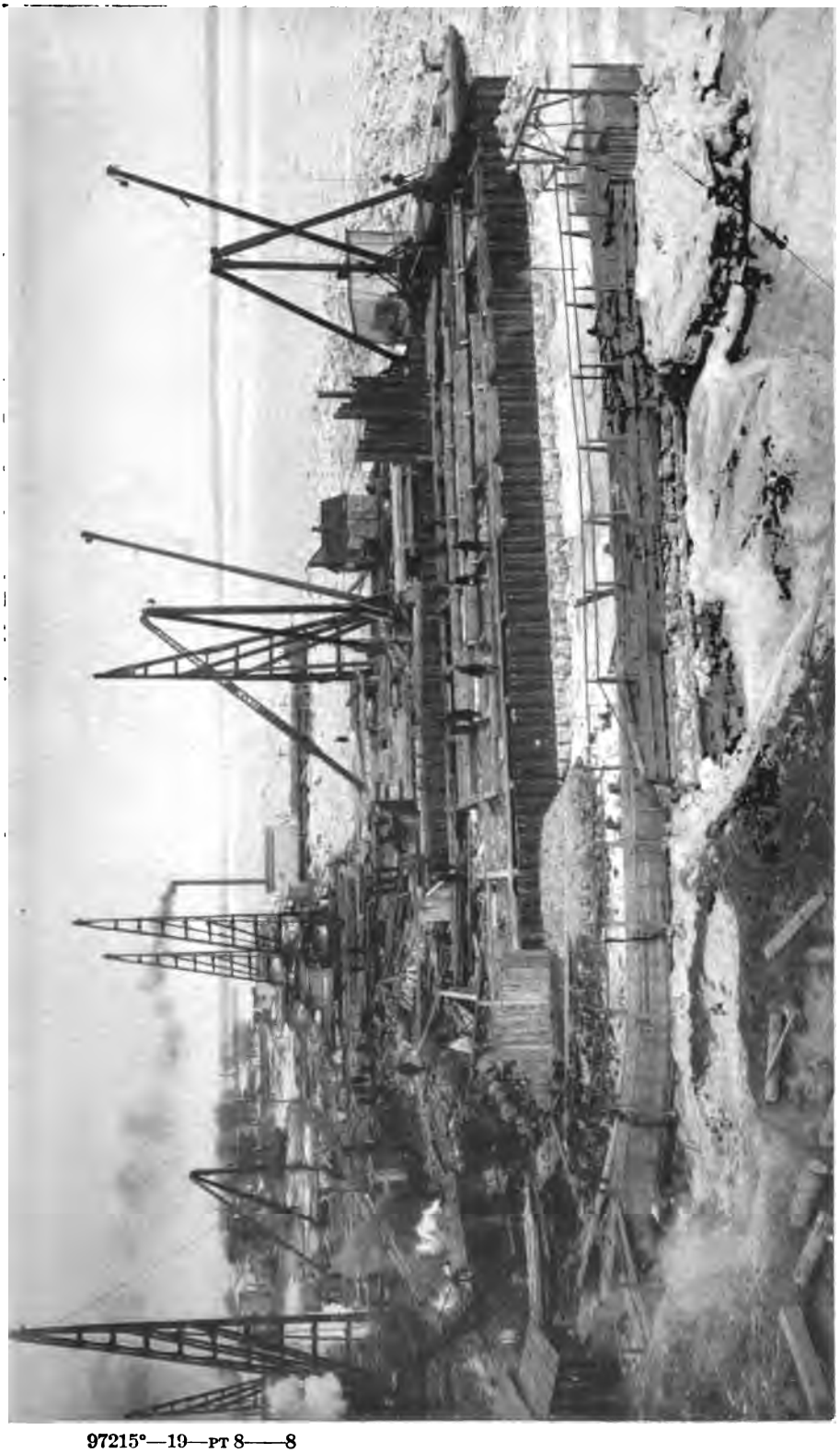
WET BASIN SECTION—DREDGING UNDER DIFFICULTIES IN ARCTIC WEATHER, JANUARY 5, 1918.

COMPRESSOR HOUSE NO. 1 AND WAYS GROUP NO. 1 (LOOKING SOUTH FROM SECOND AND E STREETS), JANUARY 23, 1918.

LOOKING NORTHEAST FROM CENTRAL FIRE STATION, JANUARY 30, 1918.

STEAM SHOVELS GRADING FRONT STREET, FEBRUARY 2, 1918.

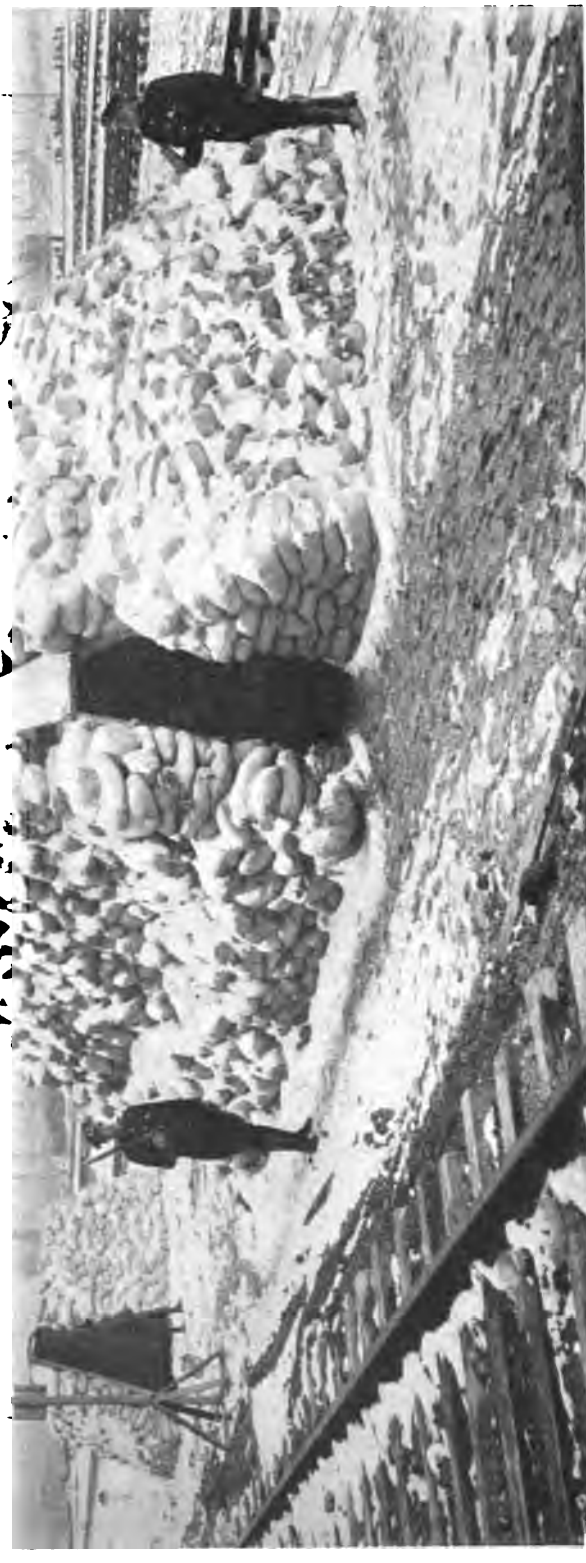




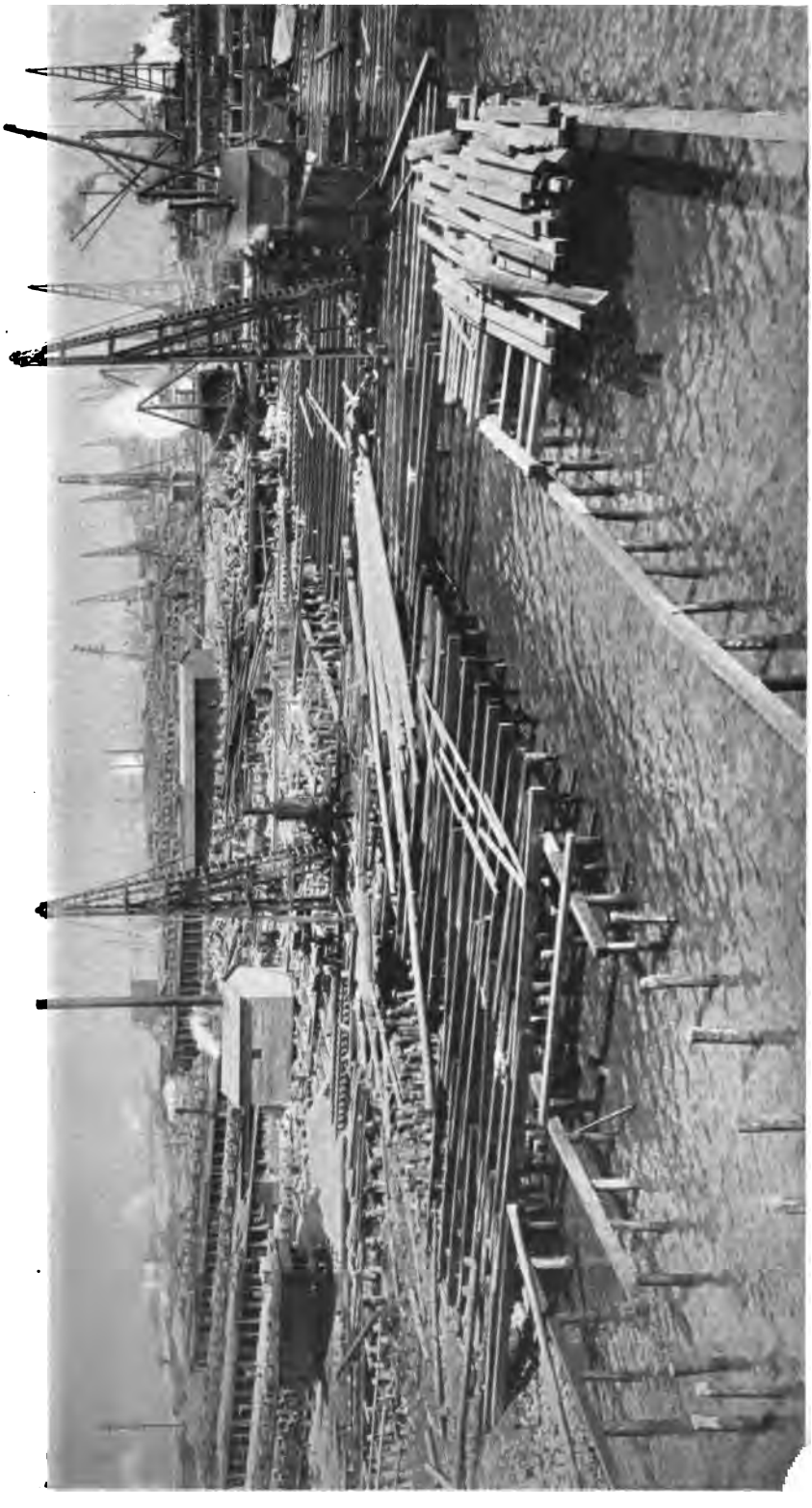
TYPICAL STEEL CAISSON DRIVEN AT TOE OF SHIPWAY NO. 41, FEBRUARY 7, 1918.

EXCAVATING TO GRADE, IN FRONT OF WAYS GROUP NO. 1, FEBRUARY 12, 1918.

EXCAVATING TO GRADE, STORAGE YARD "B," FEBRUARY 13, 1918.



DYNAMITE STORAGE (USED IN EXCAVATION WORK), FEBRUARY 23, 1918.



LOOKING NORTHEAST FROM WAYS GROUP NO. 4, MARCH 11, 1918.

Senator RANSDELL. Is that your method of thawing the ground [referring to photograph; see illustration, p. 328]?

Mr. BRUSH. Yes, sir. That is the live steam method of thawing the ground before excavating. The ground was frozen. Whether the location was right or whether the scheme was right I hold no brief, and I was not concerned with it in any way, shape, or manner; but I do think the boys really accomplished a superhuman task, no matter what the circumstances were nor what they paid, or what it cost—it was a whale of a job. I had no conception of this myself. I never saw this plant until last July.

Senator VARDAMAN. Let me ask you just at this point, is the plant complete at present?

Mr. BRUSH. Substantially so, Senator.

Senator VARDAMAN. What has it cost?

Mr. BRUSH. We have furnished Mr. Piez with a statement which shows the plant stands, with the work completed, that the Emergency Fleet Corporation have authorized us to complete prior to January 1, 1919, at $66,200,000.

Senator VARDAMAN. It has gone up $3,000,000 since I heard the last estimate, which was $63,000,000.

Mr. BRUSH. I think the figure Mr. Piez gave was the actual expenditures.

Senator VARDAMAN. When I heard him last he had estimated they had expended $57,000,000 or $58,000,000, and estimated it would take $5,000,000 more, making $63,000,000.

Mr. BRUSH. That was the figure which Mr. Piez had before him. I have checked up against the approvals of the Fleet Corporation. and have found out that each individual purchase; each individual order; each individual pay roll; each individual voucher, and each individual check is signed in longhand by the Emergency Fleet Corporation representative, and each individual blue print from the beginning up to the last one—which I have here—is signed in longhand by the authorized representative of the Emergency Fleet Corporation.

Senator RANSDELL. That part of your story you had prepared to date?

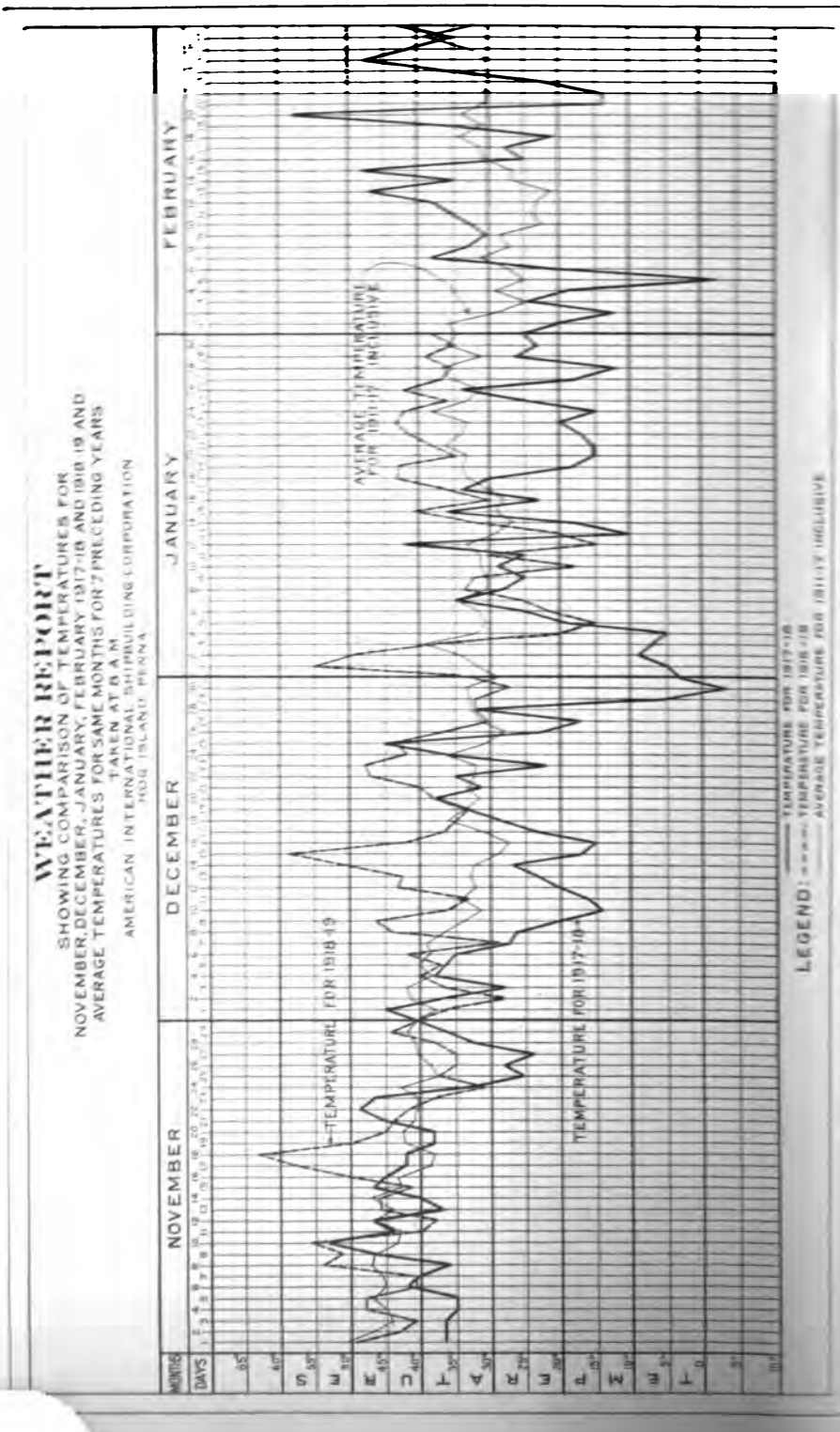
Mr. BRUSH. Yes, sir. I have it ready, Senator. Perhaps I have taken too much time in this sort of thing, but I was in hopes I could make it clear to you. May I simply show you one exhibit which is too small to have you see from a distance. [See illustration, p. 342.] The heavy black line indicates the temperature of a year ago and the broken line here indicates the temperature of this year. The light black line indicates the average temperature for the years 1911–1917.

Senator RANSDELL. I do not quite understand that.

Mr. BRUSH. For instance, a year ago, on December 30, the temperature at Hog Island was about 4° below zero. On practically the same date this year the temperature was 55° above zero. The heavy black line indicates the temperature of a year ago, showing the conditions under which these people were working being the temperature of the winter of 1917–18.

Senator RANSDELL. Stating it in language so we can get it in the record, the temperature is very much higher this year than it was last year?

Mr. BRUSH. Oh, yes; there is scarcely an instance, so far—well, there was not one case from the 1st of November until the 28th of January, with the exception of five instances of short duration,


WEATHER REPORT
SHOWING COMPARISON OF TEMPERATURES FOR
NOVEMBER, DECEMBER, JANUARY, FEBRUARY 1917-18 AND 1918-19 AND
AVERAGE TEMPERATURES FOR SAME MONTHS FOR 7 PRECEDING YEARS
TAKEN AT 8 A.M.
AMERICAN INTERNATIONAL SHIPBUILDING CORPORATION
HOG ISLAND, PENNA.
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MONTHS
DAYS
TEMPERATURE FOR 1918-19
TEMPERATURE FOR 1917-18
AVERAGE TEMPERATURE FOR 1911-17 INCLUSIVE
LEGEND: TEMPERATURE FOR 1917-18
TEMPERATURE FOR 1918-19
AVERAGE TEMPERATURE FOR 1911-17 INCLUSIVE

where the temperature was below 30° this year at Hog Island, and only two instances of a few hours' duration where the temperature was as low as 15° above zero, and a year ago there were nine cases during the same period where the temperature was anywhere from 15° above to 3° below zero. The average temperature, I have not the exact figure to show, but the average temperature was very much lower a year ago than it has been up to this time, and we have had absolutely no snow on the ground at Hog Island so far this year, while last year we had great quantities.

As to the magnitude of the plant, etc., I should like to submit the following for the record.

(The statement referred to is here printed in full, as follows:)

JANUARY 28, 1919.

W-3.

MAGNITUDE OF THE PLANT.

Area, original, 846 acres.

Purchase price, $1,706,000.

Additions, in 1918, 81.14 acres. (What is known as west impounding basin was acquired at west end of original property on water front for the purpose of pumping from dredging in wet basin. Price, $200 per acre, plus fees to State, legal services, etc., making total purchase price $34,847.15. Average cost per acre, $429.47. This property was practically submerged at high tide.) Added to the 846 original, makes a total of 927.14 acres.

Dimensions of shipways:

| | | Square feet. |
|---|---|---|
| Group No. 1 (wood), 68 by 487 feet over all; total area of surface of ways | | 281,240 |
| Group No. 2 (concrete and wood): | | |
| Wood construction, 68 by 181 feet over all; area | 86,360 | |
| Concrete construction, 68 by 306 feet over all; area | 208,080 | |
| Total area surface of ways | | 294,440 |
| Groups Nos. 3, 4, and 5 (wood), 68 by 540 feet over all; area | | 953,880 |
| Total area of 50 ways | | 1,529,560 |

Piers between ways, 37 feet wide and vary in length from 132 feet to 324 feet.

Wide piers between each group of 10 ways are 142 feet wide.

Total area of way piers, 442,193 square feet.

Wet-basin piers: Seven piers 100 feet wide and 1,000 feet long on short side of pier.

Area of Pier M is 56,179 square feet.

Area of marginal wharf is 94,886 square feet.

Area of seven outfitting piers is 747,271 square feet.

Total area outfitting piers: Pier M and marginal wharf. 898,336 square feet.

Square feet floor area of buildings:

| | Square feet. |
|---|---|
| Administration buildings, office buildings on ways and elsewhere | 1,200,000 |
| Utility buildings, fire houses, electric sub-stations, guardhouses, water stations, etc. | 150,000 |
| All warehouses | 1,850,000 |
| Shops | 800,000 |
| Hotels, cafeterias, mess halls, and sleeping quarters | 505,000 |
| Total (equivalent to 103 acres of floor space) | 4,505,000 |

(NOTE.—Of the total 4,505,000 square feet of floor space of all buildings, 1,082,600 square feet, or 24 per cent, is fireproof or permanent buildings.)

Storage yards:

| | Square feet. |
|---|---|
| Steel storage yards (90 acres) | 3,915,000 |
| Equipment storage yards (58 acres) | 2,525,000 |
| Coal-storage yards (5 acres) | 240,000 |
| Total area storage yards (153 acres) | 6,680,000 |

| | Miles. |
|---|---|
| Railroad track | 82 |
| Fence: | |
| Board fence | 4.5 |
| Wire fence | 7.1 |
| Total | 11.6 |
| Roads: | |
| Slag road | 5 |
| Plank road | 16 |
| Total | 21 |
| Sidewalks | 2 |

ADDITION TO SCOPE.

It was impossible to determine the scope of the Hog Island shipyard until the yard was practically completed. A great many factors have contributed to enlarging the scope of certain fundamental facilities. As an illustration—wet basin piers and dredging. Estimate November 27, 1917, provided seven piers 66 by 1,000 feet, two tracks, and shallow dredging. Revision of estimate April 1, 1918, provided seven piers 100 by 1,000 feet, four standard railroad tracks, and two gantry-crane tracks for each pier, and piers strengthened for heavy gantry-crane equipment.

There are many instances where, as the work progressed and the requirements of the project came to be better realized, it was found that some changes should be made in the original plans and many additions provided, thereby adding to the total cost of the work.

I am advised at the time of the original discussion between Gen. Goethals and the officers of our company, there never had been conceived or put into execution a plan for the fabrication of ships on the enormous scale suggested for Hog Island.

As to our utilities—electric, water, sewerage and drainage, compressed air, fuel oil, heating, fire sprinkler and hydraulic systems—I should like to submit the following for the record:

JANUARY 26, 1919.

W-6.

UTILITIES.

ELECTRIC SYSTEM.

Power purchased from Philadelphia Electric Co.

Transmission lines, double-circuit steel tower, 66,000 voltage; length, 7,800 feet.

Main substation, brick and steel construction, placed in service March, 1918; capacity, 24,000 kilowatts.

Substations, 35.

Motors, 1,149; combined horsepower, 37,100.

Transformers, 577; capacity, 22,252 kilowatts.

Street and yard lamps, 3,441; equivalent in capacity to 66,620 40 watts, commonly used in residence lighting.

Building lamps, 200,000 outlets.

Electric fans, 1,558.

Pumping stations, 10.

Compressor houses, 7.

Fire-alarm boxes, 409.

Consumption, 130,000 kilowatt-hours received, transformed, and distributed.

Time clocks, 422, synchronized with and operated by master clock located at main substation.

Electric yard call, 28 stations.

Miscellaneous, electric tabulating machines for material control and financial accounts. Electric-driven potato peelers, dough mixers, dishwashers, and hospital appliances.

STATISTICS—ELECTRICAL.

Overhead wires, 400,000 feet, equal to more than 75 miles.
Poles for overhead lines, 500.
Underground cables, 400,000 feet, over 75 miles.
Fiber duct laid in concrete, 237,600 feet, 45 miles.
Wire used in lighting permanent buildings, 2,000,000 feet, approximately 379 miles.
Temporary work—
Overhead wires strung, 531,000 feet, 101 miles.
Poles set, 1,052.
Substations built, 3.

HISTORICAL.

During September and October, 1917, engineers, spurred by demand for speed, drew plans and specifications and ordered equipment for an electrical receiving and distributing system totalling 24,000 kilowatts. Work normally completed in weeks, completed in hours. Decisions usually requiring days made in minutes.

Electric power first delivered October 22, 1917. Transformers for the first temporary substation brought in by wagons over roads hub deep in mud, each wagon requiring 12 horses.

A plant the size of the one at Hog Island would supply a city of more than 200,000 population and would be capitalized at approximately $4,000,000.

WATER SYSTEMS.

Kind—
1. High-pressure system for fire protection and industrial use.
2. Domestic system for drinking water, etc.

*High-pressure system.*

Number of pumping stations, 2.
Capacity, 19,000 gallons per minute.
Source of supply, Delaware River.
Pressure, normal, 62½ pounds; fire, 125 pounds (with pumps connected in series).
Pipe, 86,000 feet (16.3 miles); size, 2 inches to 16 inches.
Fire hydrants, 270.

*Domestic system.*

Number of pumping stations, 1.
Filtration plants, 1.
Capacity, 2,000,000 gallons per 24 hours.
Source, Delaware River.
Character of filtration, rapid sand gravity filter, through which water is sedimented, filtered, and chlorinated.
Pipe, 69,860 feet (13.2 miles); size, 2 inches to 16 inches.
Storage capacity, 330,000 gallons.
Consumption, average per day 1,800,000 gallons, 54,000,000 per month.

*High-pressure and domestic systems combined.*

Pumping stations, 3.
Total water pipe, 156,583 feet (29.65 miles).
Consumption (estimated), 2,800,000 gallons per day, 84,000,000 gallons per month.
Hydrants, fire and flush type, 331 (living quarters fire hydrants on domestic supply).
A plant of this size would supply a city of 30,000.

SEWERAGE AND DRAINAGE.

Sewage-disposal plants, 1 (2 pumping plants).
Drainage system, 2 pumping plants (surface draining).

[illegible]

[illegible]

[illegible]

parently I did not make clear this morning. Some of the gentlemen have called my attention to it during the luncheon hour. That is in connection with the reason for the *Quistconck* not having the highest Lloyd's rating, and I am afraid I left the wrong impression in the way I answered Senator Lenroot's questions. I think we ought to understand that up to comparatively a short time ago British Lloyd's was practically the only inspection bureau, and all marine insurance companies required a Lloyd's certificate before they would insure a vessel. That made necessary the inspection of all ships by Lloyd's inspector. Now, Lloyd's is a British institution, and this country undertook to establish a similar inspection bureau, called the "American Bureau of Shipping" under the direction of Commander Stevenson Taylor. When the Emergency Fleet Corporation let the contracts for these ships, they recognized that in order to make it perfectly clear that the American bureau, which was an American institution and was headed by a United States Government representative, be given an opportunity to establish itself——

The CHAIRMAN. I think I might correct you here. It is not being established by the Government.

Mr. BRUSH. I do not mean by the Government.

The CHAIRMAN. The Shipping Board may be encouraging it as an American enterprise.

Mr. BRUSH. That is what I meant to say. So the first 50 A ships at Hog Island were inspected by Lloyd's and by the American Bureau both. They have on the side of the vessel, however, "A. B." and not "L. R.," A. B. meaning American Bureau and L. R. meaning Lloyd's Register. The second set of A boats, the 60 A boats, Lloyd's will not examine; they will be examined by the American Bureau only. At the time of the purchase of these chains for these ships they were purchased by the Emergency Fleet Corporation and not by ourselves, and they saw fit to use the American Bureau as their inspector out in these factories where this material was manufactured.

Senator VARDAMAN. Is this American Bureau a private enterprise or is it under Government regulation?

Mr. BRUSH. The American Bureau is a private corporation collecting a regular charge or fee for their services, which is applied, however, to offset its running expenses and for carrying on its business. It has no stock and pays no dividends. I understand that a number of leading Government officials, such as the Chief Constructor and the Engineer in Chief of the United States Navy, are chairmen of technical committees of the bureau.

Senator VARDAMAN. Who is at the head of it?

Mr. BRUSH. Commander Stevenson Taylor—so that on the second 50 A's we have no inspection by Lloyd's at all. When these chains came to us they had received the A. B. inspection and certification. Mr. Levy tells me that he understands that the American Bureau is for the information of the marine underwriters in this country.

Senator RANSDELL. Have you any objection to allow Mr. Levy to tell us just a little about that?

Mr. BRUSH. No, sir. Mr. Levy, so it may be clear in your record, was formerly General Manager of the Frisco lines and is now my assistant at Hog Island. He represented the Emergency Fleet Corporation for about four months at the island and for several months

past has been assistant to the president of the American International Shipbuilding Corporation.

Mr. LEVY. All I can say is that the American Bureau is a private organization run for the information of the marine underwriters, shipbuilders, and shippers of America.

The CHAIRMAN. Insurance is based on their classification?

Mr. LEVY. In a similar manner to the insurance of British vessels in Lloyd's.

Senator RANSDELL. And the French Bureau Veritas?

Mr. LEVY. Yes, sir.

Senator RANSDELL. It is a classification society for American ships, so that the underwriters in insuring them may know they are properly classified, just exactly as Lloyd's serves the British ships?

Mr. LEVY. It is to America what Lloyd's is to England.

Mr. BRUSH. The reason that matter should be made clear is that these chains on the *Quistconck* are good chains. I know that from personal information, because I have seen them submitted to as severe a test as you can possibly submit a chain, and I have the evidence of Capt. Carlton, of the United States Navy, who stated to Admiral Bowles and Mr. Piez in my presence that he considered the steering gear on these ships and the anchor handling arrangement the finest he had ever seen on any vessel on which he ever sailed. The American Bureau was satisfied with these chains. Lloyd's had not been consulted in their inspection at the point of manufacture. Therefore when these chains were put on board the ship Lloyd's would not pass them. The American Bureau did pass them, and she has the highest rating the American Bureau gives any cargo ship.

Senator RANSDELL. And it was solely because of some apparent slight defect in the chains that Lloyd's did not rate the *Quistconck* first class?

Mr. BRUSH. That is what Lloyd's stated, Senator. Some of the links in each of these chains instead of being absolutely straight are slightly warped and the welds of a slightly smaller diameter. As far as tensile strength is concerned it has just as much strength as a link each side of which is the same, but they did not look just alike on each side and Lloyd's had nothing to do with them until they were placed on the ship. Instead of the *Quistconck* having Lloyd's rating of +100A—1, it has the rating of +100A— the figure "1" representing equipment being left off. That is all the difference.

Senator RANSDELL. There is only a slight defect, according to Lloyd's?

Mr. BRUSH. Yes, Senator.

I should like to call your attention to Article I of the constitution and by-laws of the American Bureau of Shipping, which was inserted in your record of proceedings last March (p. 2391) when Commander Stevenson Taylor appeared before you. The article is as follows:

ARTICLE I. *The objects of the bureau.*—The objects of the bureau are as shown by the charter, and for the purpose of carrying out these objects the bureau is to provide for shipbuilders, underwriters, shippers, and all interested in maritime commerce a faithful and accurate classification and registry of mercantile shipping and to aid and develop the merchant marine of the United States of America.

Senator RANSDELL. May I ask you about the class B ships? Who is going to classify them? Lloyd's or the American Bureau?

Mr. BRUSH. The American Bureau and Lloyd's will classify the first 50 A ships and the 70 B ships and the American Bureau only will classify the 60 A ships.

As an evidence of what we are endeavoring to do at Hog Island with respect to creating a team, which must be the secret of our success, if we are to have a success—and I feel confident that we are—immediately on my taking charge I called together 27 heads of the different divisions and departments so that all might understand each other, and we agreed upon a policy. We have a meeting once a week of these heads of departments and heads of divisions in order that we can eliminate unnecessary duplication. It is purely to determine the method of organization to follow, the same method of organization that I have followed with all companies with which I have been associated in the past, and I think this expresses it better than anything I could say. These minutes of our meetings are the minutes as we went along day after day, one a week at least, and we agreed this should be the policy of our so-called council. I call it a "council" intentionally, because I think these men should feel we are all on an equal basis in the council rather than a chief with a lot of subordinates, and the caliber of men you have at Hog Island in the executive force is as fine and as high grade as I have ever found.

I have not brought anybody to Hog Island. Mr. W. B. Ferguson, a graduate of the Naval Academy, was there when I went there, Capt. C. S. Bookwalter, a graduate of the Naval Academy, was there when I went there, and the men in charge of the different divisions I found when I went to Hog Island. They were men who had given up positions which they held elsewhere, or interests in concerns, and they have agreed that they will stay on with me and complete the job. I have in mind a man who was vice president and a very substantial owner in a steel concern who probably, from a selfish standpoint, would be better off at home.

Senator VARDAMAN. How are those men paid?

Mr. BRUSH. By us as the agents of the Emergency Fleet Corporation. The policy which we agreed we would follow when I formed the council is this:

After the freest and most frank discussion, with opportunity for each and every man directly or indirectly concerned to express his opinion or judgment on any matter or policy or detail of operation or construction, the decision must be rendered by the responsible executive head, and this decision having once been determined upon, the officers and any others concerned shall loyally carry it out, even though it be against their own judgment, until conditions to their knowledge have in any way, shape, or manner changed which, in their judgment, may possibly change the executive's decision, at which time it shall not only be their privilege but their duty to again open up the question.

The result is that we get expressions of opinion from the men all the way down the line. We have meetings there from our heads of divisions down. I attended a meeting the other night of 60 of the instructors, who instruct the new men in the training school. We have meetings of our foremen, at which free discussion of methods of work is carried on, and I feel very confident there is going to be created and is in process of creation now a very remarkable team; as fine a team as you have ever seen. I think I have never seen men spend their time, energy, and ability more freely, and they are

staying through with the game. I know absolutely whereof I speak: they can not be beaten. I have not a single word of fault to find.

On October 29, 1918, there were in the employ of the compa: 28,573 men, and on January 28, 1919, there were 34,049. This is an increase in those who were directly involved in building ships. That is, your riveter, your holder-on, and your bolter-up, your fitter, etc. The men on the ships and in the shops show an increase of 7,41- and the decrease in those not directly involved in building ships 1,938. I assume it is my job to create as full and as big a force as I can building ships and to make the percentage of all other employees as small as I possibly can.

The ship construction and shop employees increased from 58 per cent to 70 per cent and others decreased from 42 per cent to 30 per cent, which is just what I assume we ought to do. I will not take the time of the committee reading the details of this statement, but will hand it to the stenographer and he can copy it into the record.

(The statement referred to is here printed in full as follows:)

"W-10."

COMPARISON OF MEN EMPLOYED ON SHIPWAYS AND IN WET BASIN WITH OTHER EMPLOYEES.

*Comparison of the number of employees in each division, Oct. 29, 1918, and Jan. 28, 1919.*

| Division. | Oct. 29, 1918. | Jan. 28, 1919. | Increase. | Decrease. |
|---|---|---|---|---|
| Executive | 77 | 67 | | |
| Financial | 1,490 | 1,271 | | |
| Yard | 6,377 | 5,029 | | [illegible] |
| Ship construction | 15,795 | 22,702 | 6,907 | |
| Shops | 817 | 1,298 | 481 | |
| Purchase | 332 | 324 | | |
| Steel and machinery | 968 | 845 | | |
| Industrial relations | 548 | 318 | | |
| Stores and material | 2,169 | 2,195 | 26 | |
| Total | 28,573 | 34,049 | 7,414 | [illegible] |

*Comparison of employees working on ship construction and in shops Oct. 29, 1918, and Jan. 28, 1919, with other employees.*

| Division. | Oct. 29, 1918. | Jan. 28, 1919. | Increase. | Decrease. | Percent Increase. |
|---|---|---|---|---|---|
| Ship construction | 15,795 | 22,702 | 6,907 | | [illegible] |
| Shops | 817 | 1,298 | 481 | | [illegible] |
| Total | 16,612 | 24,000 | 7,388 | | |
| Executive | 77 | 67 | | 10 | |
| Financial | 1,490 | 1,271 | | 219 | |
| Yard | 6,377 | 5,029 | | 1,348 | |
| Purchase | 332 | 324 | | 8 | |
| Steel and machinery | 968 | 845 | | 123 | |
| Industrial relations | 548 | 318 | | 230 | |
| Stores and material | 2,169 | 2,195 | 26 | | |
| Total | 11,961 | 10,049 | 26 | 1,938 | [illegible] |

[1] Decrease.

Ship construction and shop employees increased from 58 per cent on October 29, [illegible] to 70 per cent on January 28, 1919; ratio of increase, 21 per cent. Other employees decreased from 42 per cent to 30 per cent; ratio of decrease, 28¼ per cent.

Mr. BRUSH. One of the elements in which I think the committee ought to be very much interested, and one of the elements of which I think we are justifiably proud at the island, is the fact that I think we were the first institution in the United States to deliberately go out and take wounded soldiers out of the hospitals and undertake to give them positions where they could earn a living.

On Saturday night, during the last week of the fourth liberty loan campaign, I listened to a young man make an address to a crowd of people in the interest of liberty bonds, and this young man, a Mr. Owen, who was field secretary for the Four-Minute Men and Council of National Defense, had with him about 20 wounded soldiers. He presented each of these boys to the people and prevailed on a number of them to make short talks.

I got in touch with him, and by securing his leave of absence from the above-named war bodies, got him into our organization and sent him to Washington to secure the cooperation and support of the War Department in having returned wounded soldiers and marines sent to Hog Island on furlough, for their further physical development; their moral effect on our workmen, and that they might be taught new trades and occupations which would be useful to them throughout their lives in successfully competing with physically normal men.

The office of the Secretary of War indorsed our plan heartily, as also did the Surgeon General's Department of the Army and the Federal Board for Vocational Education. The Surgeon General's Department and the Federal Board each sent a representative to Hog Island to inspect the plant and our facilities for caring for and teaching these men. On November 11, 1918, the first men were furloughed to us—14 of them—from the Walter Reed Hospital, Washington, D. C. Each had lost an arm or a leg, and here is a photograph of the first 13 of these boys taken soon after their arrival at Hog Island. [See illustration, p. 352.]

We brought them down to the island the next day, and in a report which was made on December 4 there is reference to the first man. He was placed as a rivet heater at 50 cents an hour. He has since been taught to fulfill the duties of an expert signalman, which pays him 75 cents an hour. He has one arm off at the left elbow. Another one, with loss of the left arm at the shoulder, was placed as a material checker at $30 per week and is giving satisfaction in that position.

Third, a man with loss of right arm below elbow was placed as a rivet heater at 50 cents an hour and has since become a signalman at 75 cents an hour.

Fourth, the same applies to a man with loss of right arm below elbow; another one with loss of left arm above elbow was placed as a signalman and is fulfilling the duties at 75 cents an hour. The tenth was a man who had suffered the loss of his left arm above the elbow; he was placed as an electrical checker at 54 cents an hour. The next was a man who had suffered the loss of his left leg below the knee, was placed as a material checker at $30 per week, and is now chauffeur for an official, driving a large touring business car, for which he is being paid $5.50 a day. That man has a good artificial leg, and is just as good a man for his job as a man who had never gone to war. The next a man who lost his arm below the elbow, was

placed as rivet heater at 50 cents an hour, and is now a material checker at $30 per week.

Senator VARDAMAN. These are all men, under the pay of the Government?

Mr. BRUSH. Yes; they were at that time, and by us also, having since been discharged from the service; but none of these men are being treated as subjects of charity.

Senator RANSDELL. They are doing just as good work as anybody else?

Mr. BRUSH. Yes, sir; every bit as good. For the information of the committee I wish to place in the record copy of a circular dated December 4, 1918, the subject of which is "Good Jobs for Soldiers," a supply of which was mailed to the commander of each base and camp hospital in the East with the request that the circulars be posted where they could be read by the wounded soldiers.

(The circular referred to is here printed in full as follows:)

"W-58-B."

DECEMBER 4, 1918.

GOOD JOBS FOR SOLDIERS.

The American International Shipbuilding Corporation at Hog Island, just outside of Philadelphia, Pa., offers employment to returned discharged overseas soldiers—whether partially incapacitated through having been wounded, or through the loss of part of their faculties.

Men will be given every consideration.

Where necessary, they will be taught new trades and occupations, and otherwise fitted to cope with normal men throughout life.

The minimum or lowest wage that will be paid is 46 cents per hour—44 working hours to the week.

There are now a number of returned soldiers working at Hog Island, who have lost an arm, a leg, an eye, etc. Several are making 75 cents and 80 cents an hour.

There is an Emergency Fleet Corporation hotel adjoining the shipyard—new and modern in every respect—where men may secure room and two meals (namely, breakfast and supper) for $9 per week.

Come to Philadelphia—telephone Tinicum 100, and ask for branch phone 242, labor control department.

AMERICAN INTERNATIONAL SHIPBUILDING CORPORATION.

Senator RANSDELL. You are not giving them any preference because of being wounded soldiers?

Mr. BRUSH. No, Senator; we came to Washington and secured these men. The last man had suffered the loss of his left leg above the knee. He was placed as a steel checker at $30 per week, in which position he made good and is now ready for advancement.

Senator VARDAMAN. That really is not charity; it does not come out of the pockets of your company; it comes out of the United States Treasury.

Mr. BRUSH. What do you want me to say, Senator?

Senator VARDAMAN. Then there is no especial charity on your part, on the part of your company doing this?

Mr. BRUSH. The only thing I am proud of is that our boys there did "go to it" I believe before other plants started to help take care of these boys in an organized way to aid them to secure jobs and earn money without charity on anybody's part.

Up to the present time, January 28, we have placed 2,053 soldiers; 226 were not suited by the employment offered, and there were 64 who

were disqualified for special reasons and we have therefore given consideration to 2,345 men in khaki. The approximate number of men discharged from the Army in that list is 1,720; from the Navy and Marine Corps 335; from overseas service 309, and the number of men wounded in service is 69. Ninety-five per cent of these men are working out in the open and seem better satisfied in this capacity. Numbers of them have learned new trades and occupations; in fact all the wounded men, due to being partially incapacitated, have been forced to do so. The percentage of departure is very slight. A number of these men are living on the island, either in the barracks or E. F. C. Hotel.

All of these men seem to appreciate the work offered them and the opportunity given them for advancement. Their morale is good and they accept this employment in a serious, business-like manner. The superintendents and foremen, generally, report their work as steady and efficient. With the additional number of men being discharged now, approximately 100 men are interviewed daily, with about 80 per cent accepting the work offered them, and I do not believe there is one instance where a man in the service has been flatly turned down at Hog Island when applying for work.

Senator RANSDELL. Sixty-nine of those men had been wounded?

Mr. BRUSH. Yes, sir. I should like to submit for the record at this point the following correspondence.

(The correspondence referred to is here printed in full as follows:)

"W-58."

PHILADELPHIA, PA., *December 4, 1918.*

MATTHEW C. BRUSH, ESQ.,
*Vice President American International Corporation,*
*Philadelphia, Pa.*

DEAR SIR: During the last week of the fourth liberty loan, while fulfilling my duties as field secretary for the four-minute men and the Council of National Defense, I, accompanied by 20 returned wounded American soldiers, canvassed the patrons of the Ritz-Carlton Hotel in furtherance of the bond sales. Several directors and officers of your corporation were present and, realizing the psychological effect these returned wounded soldiers would have on the workingmen of the Hog Island shipyard, I was approached with a proposition to devote my time toward securing the discharge of a number of such soldiers that they might be brought to the shipyard and put to work at various trades and occupations.

On October 23 I proceeded to Washington with Mr. E. N. Moore, of the labor control of the A. I. S. C., and, with the assistance of Mr. Pizzini, an official of the American Red Cross, we interviewed the Secretary of War's office, and particularly Mr. Stanley King, secretary to Mr. Baker, who indorsed the idea heartily and directed us to secure the indorsement of various boards and committees already interested in the returned wounded soldiers' welfare. This idea was enthusiastically received by the Federal Board for Vocational Education, the committee on development battalions, an Army organization composed of two civilians and two Army officers, the Surgeon General's department, and the American Red Cross. With these indorsements we returned to Mr. King and took the matter up personally with Mr. Baker, with the promise of furloughing the men at an early date.

Just as the order was about to be given the armistice was signed and, naturally, the War Department became overwhelmed with matters of more importance, also the psychological value to the Hog Island shipyard was enhanced.

On November 11, Col. Schreiner, commander of the Walter Reed United States Army Base Hospital, Washington, D. C., furloughed 14 soldiers to Hog Island for 30 days for work. Twelve of these men had lost an arm and two

a leg. On November 12 they were given rooms in the E. F. C. Hotel, and on the 14th were placed at work in the shipyard.

The following is a synopsis of the conduct and advancement of these particular 14 men since that date:

Pvt. Wilbert Gregory, loss of left arm above elbow. Was placed as a rivet heater at 50 cents an hour. He has since been taught to fulfill the duties of an expert signalman, which pays him 75 cents an hour.

Pvt. Howard Stevens, loss of left arm at shoulder. Was placed as a material checker at $30 per week and is giving satisfaction in the same position.

Corpl. Theodore Zechin, loss of right arm below elbow. Was placed as a rivet heater at 50 cents an hour and has since learned to become a signalman at 75 cents an hour.

Pvt. Dorsey Kelly, loss of right arm below elbow. Was placed as a rivet heater at 50 cents an hour and has since learned to become a signalman at 75 cents an hour.

Pvt. Hugh Harrell, loss of right arm below elbow. Was placed as a rivet heater at 50 cents an hour and has since learned to become a signalman at 75 cents an hour.

Pvt. William E. Leslie, loss of left arm below elbow. Was placed as a rivet heater at 50 cents an hour and has since learned to become a signalman at 75 cents an hour.

Pvt. John Gordon, loss of left arm below elbow. Was placed as a rivet heater at 50 cents an hour and has since learned to become a signalman at 75 cents an hour.

Pvt. Seab Sanders, loss of left arm above elbow. Was placed as a rivet heater at 50 cents an hour and has since learned to become a signalman at 75 cents an hour.

Corpl. J. M. Agnew, loss of left arm above elbow. Was placed as a signalman and is fulfilling the duties at 75 cents an hour.

Corpl. E. Doyle, loss of left arm above elbow. Was placed as an electrical checker at 54 cents an hour.

Pvt. Richard F. Manning, loss of left leg. Was placed as a material checker at $30 per week and is now chauffeur for an official, driving a Cadillac touring car, for which he is being paid $5.50 per day.

Pvt. John C. Jenkins, loss of left arm below the elbow. Was placed as a rivet heater at 50 cents an hour and is now a material checker at $30 per week.

Corpl. Alfred Ballinger, loss of left leg above the knee. Was placed as a steel checker at $30 per week, in which position he has made good, and is now ready for advancement.

Corpl. O. Keown, loss of right arm above elbow. Was placed as a rivet heater at 50 cents an hour and is now fulfilling the duties of material checker in the plumbing department, for which he is being paid 80 cents an hour.

These men were not carefully selected by myself or Col. Schreiner. Two of them are old Regular Army men. Several volunteered, when war was declared, into the Regular Army. Some are from National Guard units, and one was a draftee. I do not think any two are from the same State. Two of these boys had never worked elsewhere than on a farm. Two are old union men.

As you see, you have there a fair representation of 4,000,000 American soldiers, returning home and no pursuits in life. These men were placed and watched, but not hampered. They come and go as they please. They are earning their living and paying their way. Being personally interested in the reconstruction of such men and their future welfare, I have cautioned them from time to time, though not too much, not to allow the good fellowship of those thousands of workmen to take their mind and interests from the fact that they, and no one else, had the battle in life to win. In some cases they were entertained a little too much at first, but in only one case out of the 14 was there any inclination to lay down on the job with the feeling "that the world owes me a living," and that case has been smoothed out satisfactorily. I refer to Manning, the chauffeur, and recommend him as first class in every respect, and to the position of private chauffeur for Mr. Brush.

In addition to these men we have now perhaps 50 returned wounded soldiers working at Hog Island, and the consensus of opinion everywhere there is that they are making good to the man. Your idea was a wonderful one, and even now, with peace at hand, if you are going on with it you would well do these boys the greatest service they can possibly receive and at the same time have reliable workmen and staunch friends. * * * These men have not been

drawing huge wages; they know more of personal sacrifice; they have a keen conception of law and order, more respect for their superiors, and have been disciplined clean down to the bone. Several hundred discharged Army privates and noncommissioned officers, with a few discharged commissioned officers interspersed here and there, will give great balance to this enormous plant in the future.

Respectfully, yours,

JOHN H. OWEN.

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"W-58-A."

HOG ISLAND, PA., *January 28, 1919.*

M. C. BRUSH, Esq., *President:*

I submit herewith a condensed report of service men who have been interviewed and the number of men who have been placed for the months of November and December, 1918, and for the month of January, 1919:

| Month. | Applicants interviewed. | Number of applicants placed. | Number of applicants rejecting work offered. | Applicants rejecting specific reasons. |
|---|---|---|---|---|
| November | 16 | 16 | | |
| December | 421 | 378 | 40 | |
| January (1 to 28) | 1,908 | 1,661 | 186 | |
| Total | 2,345 | 2,055 | 226 | |

During the month of December 87 per cent of the men placed had been discharged from the Army and 13 per cent from the Navy. Of the number hired 9 per cent had had oversea duty and 5.5 per cent of the total number of men had been injured or wounded in the service.

For the month of January 82 per cent of the applicants placed had been discharged from the Army and 18 per cent had been discharged from the Navy. Of this number 17 per cent had had oversea duty and 2.55 per cent had been injured or wounded in the service.

Practically all of the men hired were for outside work. This work has been new to most of these men and they are learning new trades. The percentage of departure is about normal.

A number of the men employed are living either in the barracks or at the E. F. C. Hotel.

These men all seem glad to have some work to do. The morale among the men is generally good.

Approximately 100 men are being interviewed daily. About 80 per cent of these applicants are placed. No men applying for employment have been refused consideration and every effort is made to find some sort of employment for returned service men.

R. W. AITKEN,
*Manager Division of Industrial Relations.*

Mr. BRUSH. At the last hearing Mr. Piez stated to you gentlemen that the Fleet Corporation had received an offer for the sale of 25 of the A boats. I should like, if permissible, at the close of your meeting this afternoon, to read to your committee in executive session the letter which we sent to Mr. Piez without putting it in the record. I do this because I assume this is private Government business.

I should like to place the following in the record, merely as a matter of general information to your committee.

(The table referred to is here printed in full, as follows:)

"W-43-A."

JANUARY 26, 1919.

This is an extract from the report of the Commissioner of Navigaton for the fiscal year ending June 30, 1918: The table showing foreign carrying trade

of the United States from 1821 to 1918 by years, showing value of cargo, both import and export, and percentage carried in American vessels.

In 1821 88.7 per cent of the combined value of the imports and exports were carried in American vessels. There was a gradual decrease in this percentage until 1914, the year of the world war, when it was 9.7 per cent. In 1915, 14.3 per cent; 1916, 16.3 per cent; 1917, 18.6 per cent; 1918, 21.9 per cent; demonstrating that from the beginning of the war, 1914–1918, the percentage carried in American bottoms had more than doubled. With the great amount of tonnage the Emergency Fleet Corporation completed in 1918 and that in process it will not take a great many years to restore the American flag to the prestige of 1821.

Senator RANSDELL. Where did you get those figures?

Mr. BRUSH. From the Report of Commissioner of Navigation, American Government, for the fiscal year ending June 30, 1918.

Senator VARDAMAN. In 1918 American bottoms carried 21.9 per cent?

Mr. BRUSH. Yes, sir.

Senator VARDAMAN. How much of that bottom was produced by the Hog Island concern?

Mr. BRUSH. Of course, Senator, you know I have just tried to make clear to you that the *Quistconck* sailed January 3, 1919, from Norfolk.

Senator VARDAMAN. You could not give the per cent?

Mr. BRUSH. Hardly, because the *Quistconck* was not in service carrying anything in 1918.

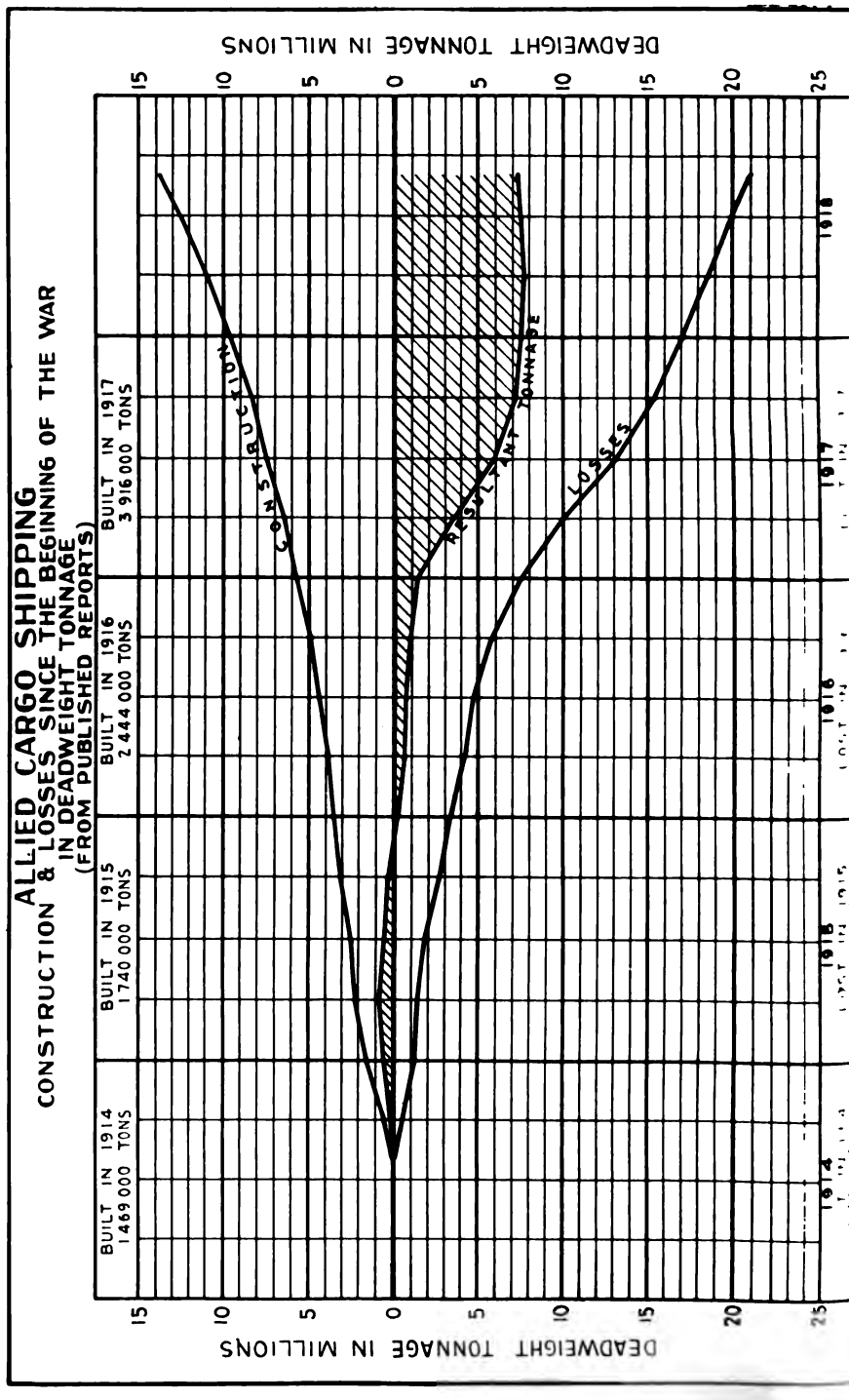
Senator VARDAMAN. It is all right; that is the answer.

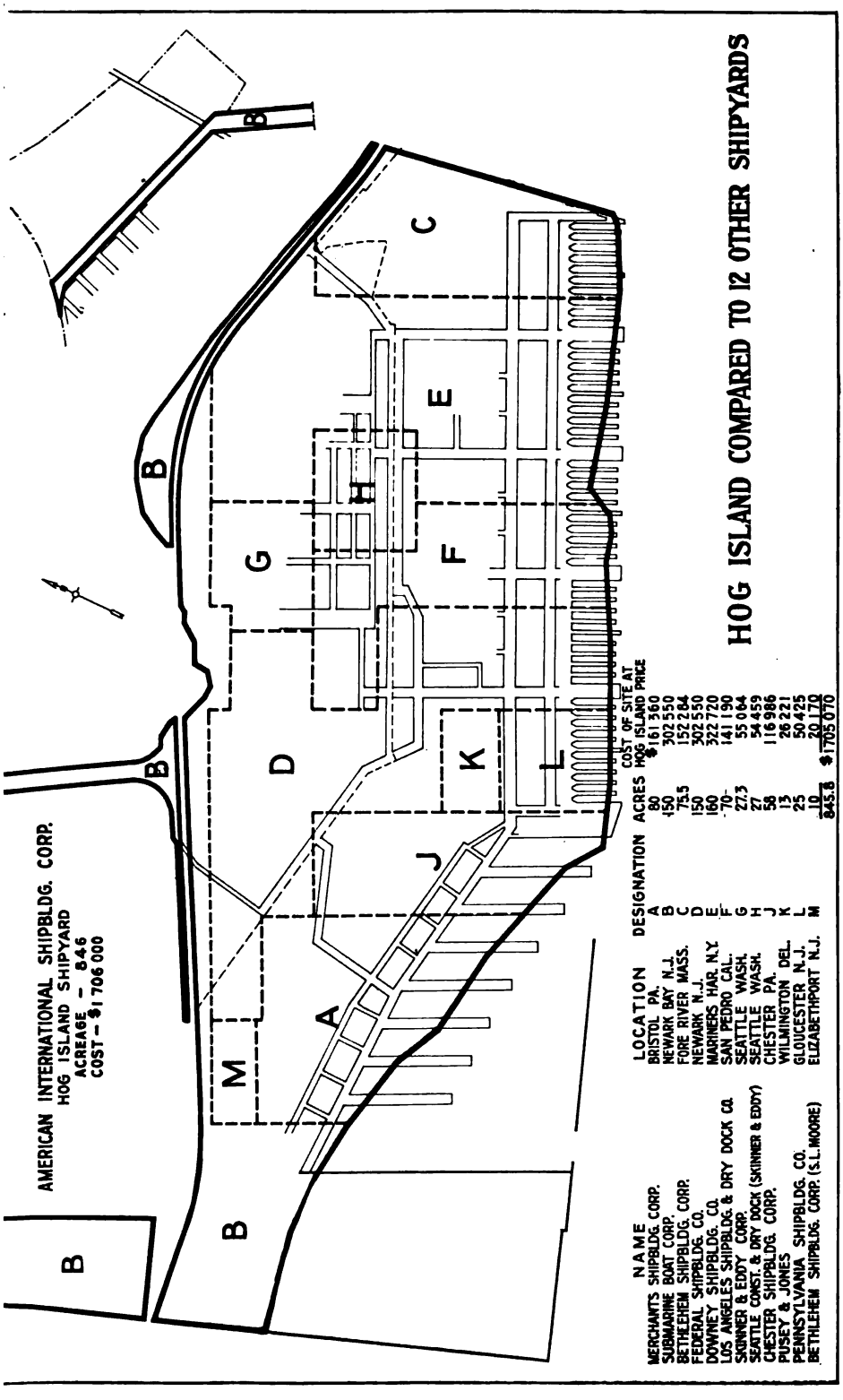
Mr. BRUSH. Here is a chart [illustration, p. 358] I should like to put in your records, which was prepared by a representative of the General Electric Co., showing the construction of allied cargo shipping, the sinking of allied cargo shipping by submarines, and the net result of the two, and the situation from 1914 to 1918 with respect to the rapidity of sinkings, as compared with the rapidity of construction. It was prepared by Mr. Potter, of the General Electric Co.

I should like also to submit for the record the following statement, headed "Comparison of the Area of Hog Island with Twelve Other Shipyards." [See illustration, p. 359.]

Mr. BRUSH. I have taken a standard blue print of Hog Island and superimposed on it according to scale the area of these 12 other shipyards and now wish to present it as an exhibit. [See illustration, p. 359.]

The figures which appear in the lower left-hand corner, taking the price of Hog Island land, which is $1,706,000 and dividing it by 846 acres, gives you the rate per acre, then multiplying the acreage of each of those plants on that plot to determine the price of the land for those respective plants, if purchased at the same price per acre as the Hog Island land. In addition, so far as the land is concerned, there are 81.14 acres of land at the west end of the wet basin, which was purchased by the American International Shipbuilding Corporation for the purpose of filling from our pumping and dredging operations instead of dredging here and loading in scows and taking it away. This property was bought by the American International Shipbuilding Corporation, and this refuse was pumped into it. The price paid for it by the American International Shipbuilding Corporation was $429.47 per acre. After paying the fee to


ALLIED CARGO SHIPPING
CONSTRUCTION & LOSSES SINCE THE BEGINNING OF THE WAR
IN DEADWEIGHT TONNAGE
(FROM PUBLISHED REPORTS)
BUILT IN 1914
1 469 000 TONS
BUILT IN 1915
1 740 000 TONS
BUILT IN 1916
2 444 000 TONS
BUILT IN 1917
3 916 000 TONS
CONSTRUCTION
RESULTANT TONNAGE
LOSSES
1914
1915
1916
1917
1918
DEADWEIGHT TONNAGE IN MILLIONS
15
10
5
0
5
10
15
20
25




HOG ISLAND COMPARED WITH 12 OTHER SHIPYARDS.

the State of Pennsylvania, legal and other expenses, the net cost per acre was $429.47.

Senator VARDAMAN. Let me ask you in connection with that: Pumping that material out of the wet basin at Hog Island into this low land that you have bought there from the State, does it not greatly enhance the value of that land?

Mr. BRUSH. It decidedly does, Senator.

Senator VARDAMAN. Have you figured on the amount of land that you made, about one-half of Hog Island? I understand when you purchased it, at high tide the water would have been over it 3 or 4 feet every day?

Mr. BRUSH. I do not know that it was as bad as that, but in this particular case I agree with you perfectly. We have taken some private land we purchased and we have filled it in by pumping from the wet basin which the Government paid for and terrifically enhanced the value of that land. That is the reason the United States Government has an option on it at the price we originally paid for it, which is $429.47 an acre.

Senator VARDAMAN. Is that a part of the Hog Island original purchase?

Mr. BRUSH. No, sir.

Senator VARDAMAN. Then the Government has no option on that.

Mr. BRUSH. Yes; because we gave it a sale option.

Senator RANSDELL. On that particular tract at $429.47 an acre?

Mr. BRUSH. Yes, sir. And that land to-day is worth about $3,000 an acre, based on information of Philadelphia real estate people, and the Government has an option to buy it for $429.47 an acre.

The CHAIRMAN. Eighty-one and fourteen one hundredths acres you got from the State?

Mr. BRUSH. Senator Fletcher, we acquired that particular 81.14 acres in this way: What is known as "Little Smith Island" lies out in the Delaware River south and west of our most westerly outfitting pier in the wet basin (Pier G). The Westinghouse people owned a large portion of "Little Smith Island" and we made a deal with the Westinghouse people under the terms of which that company acquired the balance of "Little Smith Island" and the American International Shipbuilding Corporation purchased from the State of Pennsylvania, a patent to the submerged land lying between "Little Smith Island" and our shore line and as one of the considerations to the Westinghouse people, we built a dike from our shore line to "Little Smith Island" and pumped sufficient dredged material from our wet basin back of the dike I just mentioned as being constructed by us, thereby forming that piece of perfectly good high ground that you see on the blue print of Hog Island shipyard that I exhibited to you a few minutes ago. [See illustration, p. 359.] The acreage of "Little Smith Island" was about 21 acres—as a part of the deal we acquired "Little Smith Island" from the Westinghouse people and gave them the same acreage, about 21 acres, of the west portion of this new land. I hope I have made this clear to you.

Senator VARDAMAN. I want to get that clear in my mind. For pumping that out of the wet basin onto this land the Government paid the expenses, did it?

Mr. BRUSH. Yes, sir; and it was a question whether we should pump that out of there onto the land or pump it into barges and dump it somewhere else.

Senator RANSDELL. You had to make the basin to utilize the yards?

Mr. BRUSH. Yes, sir.

Senator VARDAMAN. But the enhanced value of the land from $429.47 an acre to $3,000 an acre, the expense of the pumping, was borne by the United States Government, I understand, so your company is not at any loss for this increased value?

Mr. BRUSH. We have not suggested any loss.

Senator VARDAMAN. I know, but I just wanted that fact brought out.

Mr. BRUSH. Yes, sir.

Senator VARDAMAN. You said you agreed to give it to the Government for the price you paid for it?

Mr. BRUSH. Yes, sir.

Senator VARDAMAN. And it now is worth $3,000 an acre?

Mr. BRUSH. Yes, sir.

Senator VARDAMAN. Implying that you were giving the Government a piece of land that was worth $3,000 an acre for which you paid only $429.47 an acre.

Mr. BRUSH. No; I did not mean to imply that. What I meant to imply was this: The American International Shipbuilding Corporation was under no obligation whatever to buy that land in order to find a place to dump that dredging; they could have dredged all of that material out of the basin, loaded it on barges, and taken it down the river and dumped it elsewhere. As a matter of fact they did invest their money in that land and put this refuse on it. Before doing it, however, they gave to the United States Government an option on the land at exactly what it cost them.

Senator RANSDELL That included the pumping out of the basin?

Mr. BRUSH. Oh, absolutely. I am not looking for any credit; I am merely stating the facts, not trying to argue the case.

The CHAIRMAN. It was to the interest of the Government to have a place to put this material?

Mr. BRUSH. Yes, sir.

Senator RANSDELL. Did it not actually cost less to pump that than if you had loaded it on barges and taken it down the river?

Mr. BRUSH. There is no question of that.

Senator RANSDELL. It cost considerably less, I understand?

Mr. BRUSH. Yes; it cost less to do the dredging than if you took it out of the wet basin and put it on barges; then, again, the expense of lugging it some place else.

The CHAIRMAN. You regard that as an essential part of the whole plan?

Mr. BRUSH. Personally, I do, Senator. I think it is a very valuable part of the ultimate use of the Hog Island property.

Senator RANSDELL. Was not that filling in done with pipe-line dredge?

Mr. BRUSH. Yes, sir; with a suction dredge. The total in square feet area of the 50 shipways is 1,529,560 square feet. The total surface area of our wet-basin piers, marginal wharf, and piers between

shipways in square feet is 1,340,529 square feet. In our wet basin, we have seven outfitting piers 100 feet wide, 1,000 feet long. Those piers were originally arranged to be 66 feet wide, instead of 100 feet, as at present, and the water not so deep. Admiral Bowles, upon his arrival at Philadelphia in the early spring of 1918, decided the future of Hog Island was of such a character that he believed we should make those piers wider and deepen the water more in order that it might be used for terminal facilities, and believed the piers should be built of a much more substantial character; and his letter of April 13, 1918, on file before you explains exactly what he did and why he did it. I will not bother you with the detail of this.

Senator RANSDELL. May I ask if those piers are well adapted for commercial purposes?

Mr. BRUSH. Yes, sir.

Senator RANSDELL. Are those piers available now for commerce?

Mr. BRUSH. They are this minute "as is." Those piers are first-class A1 piers.

Senator RANSDELL. For commerce?

Mr. BRUSH. For commerce, as a terminal; and I will explain later what I have in mind in that connection. Without taking time to go into detail, I merely have with me samples of the forms on which we make purchases for everything that has been used on Hog Island from the day the contract started up to this moment—I will discuss it with your stenographer later, if you will permit me to, as to what extent this may be of interest to you, perhaps, and to what extent not. The requisitions for the material for the plant are required to have the approval of the representative of the Emergency Fleet Corporation, and I have brought here, merely as an example, a number of specific instances of purchases [indicating]. There is a purchase requisition that we make out, which has to be approved by the Emergency Fleet Corporation; then our purchasing men have to send out and secure bids; there is an original bid sheet, and there is the name of the article he is buying; there are the names of the concerns who bid; there are their bids underneath, and there is, in longhand, the approval of the Emergency Fleet Corporation representative as to whom we shall place this order with. That order is then written out and the purchase order is sent out and there is the original, with the man's signature representing the Emergency Fleet Corporation, who signs the order before we can send it out.

Then there comes back the shipping statement or invoice: there is the receipt for the material when it arrives at the warehouse or storage yard; then when that bill comes back our voucher is made out then both the voucher and the check are countersigned, "United States Shipping Board, Emergency Fleet Coropation," by the authorized representative, and every single dollar of your $66,000,000 has just exactly the same Governmental approval on it, and every single piece of material that is bought and goes into your ship, from a cake of soap to the keel, has the Government approval on it, and you have an auditor of the Emergency Fleet Corporation who has an office near our auditor; you have a representative of the Emergency Fleet Corporation whose room is separated from my room only by a three to four inch partition, and we can not make a move without

their approval. This information is kept before your Fleet Corporation from month to month throughout the time of your plant construction and thoughout the time of the construction of your ships.

Senator LENROOT. Of course, you do not know anything about the checking of the material?

Mr. BRUSH. I know something about it, Senator.

Senator LENROOT. It appeared before this committee there was neither upon the part of the American International Shipbuilding Corporation nor the Emergency Fleet Corporation any accurate checking of the material as it came in to see whether it agreed with the amount paid for the material.

Mr. BRUSH. I have read the statement made by Mr. Reed, then the representative of the Emergency Fleet Corporation. It would be an impossibility under the circumstances to absolutely allocate to specific jobs of work in such a plant specific pieces of material. As far as checking the receipt of the material, I do know, Senator Lenroot, that up to a few months ago they had only been able to check that material up to 75 per cent of it, but I have a statement here given me yesterday when I left Philadelphia that 94.33 per cent of it has been accounted for, and the other 5.67 per cent can be checked, in their opinion. This is as of January 29, 1919.

Senator LENROOT. You are familiar with the report of the Department of Justice, are you not?

Mr. BRUSH. Yes, sir; and I also undertook to satisfy myself on that. I do not want to get in over my head, because the Attorney General's report is a legal document, but Mr. P. O. Knight, our vice president and general counsel is here, and if we get into the legal end of it I will let him take it up, but from the standpoint of a practical operating man I was vitally concerned with the statement made with regard to the matter, and therefore asked the men in charge of our work to immediately familiarize me with that, which they have done in a communication under date of January 14, and it would appear that the information which the representatives of the Attorney General had at the time they made the report was not complete—that is, they did not have before them, and I say this without any disrespect, or that anybody was negligent, either their representatives or ours—but I have this letter addressed to our assistant treasurer, Mr. W. W. Dow, from Mr. C. R. Allen. Mr. Allen is in immediate charge, and reports to Mr. Dow. He states as follows. [Reading:]

PREPAYMENTS.

Referring to the statement in the report of the Department of Justice that over $10,000,000 had been prepaid without an effort having been made, previous to their investigation, to prove receipt of the material, I believe this refers to prepayments made to March 1, 1918, the actual amount being $9,806,844.13. As stated in their report, this amount was properly prepaid, as it represents bills paid in advance of the receipt of materials in order to take advantage of cash discounts, and lumber and steel bills accompanied by bills of lading, which were prepaid at the direction of the Government.

In other words, all those prepayments were made at the direction of the United States Government and some of the steel and lumber was purchased, not by us, but by the Emergency Fleet Corporation.

Many of the steel companies, however, allowed a cash discount for prepayment within 10 days.

I have analyzed this figure and find that it is made up of several large amounts that should not have been included. For instance, in the usual run of business it took from 30 to 90 days, or an average of about 45 days, for material to get to the job, and the subsequent clearing of records through the various departments. Therefore $4,366,600.12, representing prepayments (exclusive of steel) made during the period of 45 days previous to March 1, should be deducted from the above amount.

It also includes $1,450,744.65 prepaid during January to rolling mills for raw steel shipped to fabricators in various parts of the United States and Canada.

The hull fabrication department is a department in Hog Island which has charge of all raw steel ordered and all fabrication of steel until the steel arrives on the island and is available for ships.

This class of prepayments is cleared through the records of the hull fabrication department, and had the investigators examined their records they would have found inspectors' reports covering such shipments as had arrived at destination during the period in question. These prepayments, however, had not been reported to the Shipping Board as cleared as of March 1, as the method of reporting this particular class of prepayments had not at that time been decided upon.

In other words, this steel was on the way from the rolling mill to the fabricator, or fabricator to plant. The accounting department records would not show it, but the Hull Fabrication Department records would show it. That department keeps track of all steel up to the time it reaches the island.

These two items in addition to prepayments amounting to $1,018,736.87 which had been cleared previous to March 1, 1918, reduces the original $9,806,844.13 to $2,970,762.49, that it would have been possible to clear had the material been received, but due to various embargoes and traffic tie-ups, the greater portion of this material, largely lumber, had not been received, and therefore the items could not have been cleared.

Besides, complications in the transportation of lumber had produced countless difficulties in tracing shipments.

The remainder was involved in the routine of the various departments through which the papers had to flow. There was, of course, no discrimination against material receipts covering prepaid items as compared with those covering straight payments inasmuch as the receiving department had no way of making this distinction and sent both classes to the invoice division where they were handled simultaneously.

During the latter part of February, however, when we were planning to move from Philadelphia to Hog Island, all but one or two men were taken off the work of proving prepayments to assist in putting through for payment all the invoices possible before the moving period in order that payable accounts would not be unduly delayed thereby. As soon as we arrived at the island the work of proving prepayments was resumed with a larger force and has functioned continuously since.

Below is a summary of the above explanation:

| | |
|---|---|
| Prepaid to Mar. 1 | $9,806,844.13 |
| Less prepayments for the period of 45 days previous to Mar. 1 | 4,366,600.12 |
| | 5,440,244.01 |
| Less prepayments for steel | 1,450,744.65 |
| | 3,989,499.36 |
| Less items cleared to Mar. 1 | 1,018,736.87 |
| Greater portion of this material had not been received at the island. The remainder was in the process of being cleared | 2,970,762.49 |

But regardless of the amounts shown in the above analysis, it is charged by the Department of Justice that "no effort was made by the agent until our investigation to prove whether prepaid bills were in fact followed by actual receipt of the material paid for," and I submit that not only was the proving of prepayments a part of the system three months before the investigation was started, but that a very appreciable quantity had actually been cleared before the investigation, as evidenced by the figures above.

The detailed information which I undertook to show you in regard to handling material for the plant is absolutely identical with the manner of handling material for the ship.

Mr. Levy calls my attention to the fact that the procedure now being carried out and then being carried out to advise the corporation of the receipt of prepaid materials was established during October, 1917, when they first opened the accounts, and was thereafter a matter of office routine.

Without unnecessarily taking your time, I have a report before me, which is too long to read, but it shows the purchases made from September 17, 1917, to December 31, 1918, amounting to 66,631 purchase orders, each of which, like the ones that I have shown you, requiring a purchase requisition, bid sheet, purchase order, material receipt, voucher, and each one requiring a check; each one of these documents, with the exception of the material receipt, requiring the approval of the authorized representative of the Emergency Fleet Corporation.

This summary has been prepared by examining each purchase order, figuring the total commitment noted thereon, and listing the total commitments for each commodity. We have used the executive file of orders, which is practically complete, and have checked with our order register to insure having all purchases listed. The total commitment of each order has been accurately figured and proper adjustment made to take care of memoranda of changes. The actual payment on some orders may differ slightly from the figure we have used, as, generally, no memorandum of changes is issued to cover minor overs and shorts, and we have not taken into account cash discounts for the prepayment of invoices.

We have had several men classifying the total commitments under the various headings and have endeavored to make this classification uniform, but some items have undoubtedly been classified differently, owing to difference in interpretation. This variation, however, will not affect the grand total. Many of our purchases are in the nature of blanket orders, on which no total can be figured from the records maintained in this division. On such orders we have examined the Accounting Department records and have listed the total payments made as recorded thereon. This method has also been followed in arriving at the total commitment on subcontracts involving labor and material or fees. We have included only such subcontracts as have been covered by formal purchase orders.

In preparing this statement we have made no attempt to differentiate between direct "Plant'" and "Maintenance and Repairs" charges.

Many materials purchased on "Plant" orders have undoubtedly been used in Ship Construction, but we understand that proper accounting adjustment has been made to cover these items.

You will appreciate that our total figures do not represent the actual payment, as much of the material contracted for has not been shipped or billed. No freight or express charges are included in our total except such as are specifically covered by purchase orders or included in vendors' prices, but practically all trucking charges are listed, as they are usually covered by formal orders.

A number of commodities are purchased at a price which include the container, such, for instance, as cement, some oils, acids, etc., and we have made no deduction for the return value of such containers.

In view of the explanation I have made as to how these figures were prepared, you will please understand that they are presented to you for the sole purpose of placing before you in a general way the approximate cost only of the different classes of material and of certain contract services that entered into cost of your shipyard at Hog Island.

I do not want to take your time, but if I may just run through the total figures, the total orders for plant shown here [indicating] amount to $39,708,223.67.

The totals of the different classes of material and contract services entering into the cost of the plant are as follows:

| | |
|---|---|
| Rolling stock | $1,083,508.17 |
| Marine equipment | 694,858.17 |
| Vehicles | 546,867.29 |
| Construction equipment | 2,061,522.15 |

Senator VARDAMAN. What vehicles were those that were purchased there?

Mr. BRUSH. Passenger automobiles, $60,928.43; motor trucks, truck bodies, and wagons, $235,304.50; passenger automobile and truck repairs and accessories, $250,634.36, covering a period of 16 months.

Senator VARDAMAN. $60,000 for passenger automobiles?

Mr. BRUSH. Yes, sir. It is approximately 2¼ miles from one end of the plant to the other. We have figured that a Ford automobile or a $1,200 or $1,400 automobile is a good deal cheaper than a man, when it came to going from one end of the plant to the other, or from the plant to Philadelphia and back.

The Emergency Fleet Corporation have entirely concurred in that, and they furnish all of their representatives, without regard to us at all, with automobiles. No automobiles used by officers of the American International Corporation have been paid for by the Government or operated or kept in repair at the expense of the Government. The automobile which I drive, the ones which the five vice presidents drive, are paid for by the corporation without any expense on the part of the Government.

Shop equipment, rolling stock, etc. I will not take your time by reading that. I will have my assistant go through this statement and insert in the record what is of value.

The CHAIRMAN. Yes; that will be sufficient.

Mr. BRUSH. Because it is a tremendous job.

(The statement referred to is here printed in full as follows:)

JANUARY 28, 1919.

(W-56.)

PLANT ORDERS.

| | |
|---|---|
| Rolling stock: Locomotives and repair parts, passenger coaches, box cars, flat cars, hand cars, dump cars, rolling stock, repair parts, and supplies | $1,083,508.17 |
| Marine equipment: Marine equipment repairs, and supplies | 694,858.17 |
| Vehicles: Passenger automobiles, motor trucks, truck bodies and wagons, passenger automobile and truck repairs and accessories | 546,867.29 |
| Construction equipment: Pile-driving equipment, derricks and fittings, concrete machinery, locomotive cranes and repair parts, miscellaneous engines and hoists, road and trenching equipment, trench pumps, miscellaneous yard equipment, carbic lamps and carbic, explosives, machinery repair parts | 2,061,522.15 |
| Shipway hoisting machinery: Shipway derricks, steel derrick towers, electric derrick hoists, outfitting cranes | 3,605,999.32 |
| Pneumatic equipment: Air compressors, repairs and accessories, pneumatic tools | 1,373,989.39 |
| Cutting and welding equipment: Cutting and welding apparatus and supplies, compressed acetylene, oxygen, carbohydrogen | 219,018.69 |
| Rigging: Manila rope and hemp products, wire rope, cable and iron wire, chain, blocks and sheaves, chain hoists | 687,099.25 |
| Pumps: Pressure pumps, centrifugal pumps, miscellaneous pumps | 86,976.84 |
| Forest products: Lumber, railroad crossties and switch timber, piling, electric-line poles | 6,159,404.78 |
| Construction materials: Portland cement, crushed stone, sand and gravel, slag, cinders and earth, brick, lime | 769,501.64 |
| Building materials: Steel sash, ventilators, skylights, roofing, building hardware, wall board, doors and windows, wooden sash and glass, elevators | 465,240.93 |
| Fuel: Coal, bituminous and anthracite, coke, fuel | 549,120.45 |
| Petroleum products: Lubricating oils and greases, tarvia and pitch, gasoline, kerosene | 288,601.23 |
| Paints: Paint and lead, linseed oil | 212,127.54 |
| Rubber products: Hose and hose couplings, rubber boots, oiled clothing | 628 351.18 |
| Packing: Lamp wicking, packing, waste | 167,290.88 |
| Transmission: Belting, shafting, hangers, and pulleys | 27,229.33 |
| Ship-construction tools: High-speed twist drills, carbon and miscellaneous drills, bridge reamers, rivet sets, countersinks, tool boxes | 1,126,417.05 |
| Tools: Track tools, shovels, picks, crowbars, wheelbarrows, wrenches, jacks, files, lumber-handling tools, anvils, vises, miscellaneous hand tools, brushes and brooms, abrasives and abrasive tools, water buckets, cans, etc | 579,023.42 |
| Shop tools and equipment: Shop cranes, boring machines, milling machines, flaring machines, shapers, plate and angle furnaces, bending slabs, bending rolls, drilling machines, shears, grinders, lathes and planers, pipe machines, forging hammers, punches, blowers, beveling machines, power hack saws, miscellaneous trucks, woodworking machines, hydraulic machines, spacing tables, presses, forges and parts, torches and burners, bolt, nut, and rivet machines, miscellaneous taps, dies and punches, miscellaneous shop equipment | 1,868,954.50 |
| Rolling mill products: Steel bars, steel shapes, steel plates and sheets, steel reinforcing, tool steel, steel spiral pile shells, steel sheet piling, rails and fastenings, special track work | 2,196,017.22 |
| Manufactured iron and steel products: Bolts and nuts, fitting-up bolts, drift bolts and pins, spikes (not railroad), nails, rivets, washers, screws, miscellaneous castings | 2,127,606.14 |

| | |
|---|---|
| Miscellaneous metals: Spelter, copper and brass bars and tubes | $22,493.48 |
| Piping: Cast-iron water pipe and fittings, sewer pipe, corrugated iron pipe, wrought and steel pipe, hydrants, valve boxes and meters, valves and manifolds, pipe fittings | 1,687,675.43 |
| Plumbing and heating: Plumbing fixtures and supplies, lavatories, radiation, insulating materials, stoves and stove pipes, boilers and boiler fittings, lead and solder, steel stacks, breechings, miscellaneous tanks, and so forth | 535,208.52 |
| Electrical installation: Transformers, motors, control and repair parts, switchboards and fittings, copper wire and cable, rigid conduit, fiber conduit, lighting fixtures, incandescent lamps, miscellaneous electrical apparatus, miscellaneous electrical fittings and wiring devices, flashlights and dry batteries, electric fans | 2,011,513.47 |
| Live stock and maintenance: Horses and rentals, hay, oats and grain, stable supplies | 212,714.[illegible] |
| Subcontracts: Shipway construction, dredging, railroad and dike construction, plumbing and heating system, high pressure piping system, excavating | 2,788,087.6[illegible] |
| Contracted labor and material: Ways steam-heating system, yard and shop construction, roads, railroads | 1,104,510.2[illegible] |
| Engineering and inspection service | 177,274.[illegible] |
| Rentals: Passenger automobiles, auto trucks and teams, yard equipment, marine equipment | 2,270,223.7[illegible] |
| Utilities: Electric power, water service | 300,585.4[illegible] |
| Transportation: Passenger train and steamboat service | 364,380.1[illegible] |
| Miscellaneous freight charges | 29,280.[illegible] |
| Fire protection: Fire alarm system, fire fighting equipment and supplies | 154,887.1[illegible] |
| Plant protection: Yard call system, firearms and ammunition, plant protection supplies, badges and buttons, safes, insurance, steel lockers, fencing wire | 173,851.2[illegible] |
| Industrial relations: Sanitary equipment and supplies, hospital equipment, commissary supplies, miscellaneous equipment and supplies | 60,728.2[illegible] |
| Miscellaneous: Technical and precision instruments, miscellaneous instruments, time stamps and clocks, miscellaneous, shipyard candles, diving outfits, stationery and printing, canvas and tarpaulins, photographic supplies | 290,083.[illegible] |
| Total plant orders | 39,708,223.67 |

I would like to make clear, if I may, in connection with this purchase of material, the fact that lumber, piling, railroad ties, wire rope and cable, nails, ammunition and rifles, cement, gravel, stone, sand, coal, fuel oil, etc., were purchased by the Emergency Fleet Corporation. They required us to purchase through them or other governmental agencies. Practically all of the automobiles to which reference has been made were purchased by us after first securing the written approval of the authorized representative of the Fleet Corporation. A few of them were purchased for us by the Emergency Fleet Corporation.

We gave a requisition to the Emergency Fleet Corporation, and if they saw fit to approve it, they did approve it, and if they saw fit to buy it, they did so, and if they did not approve it we did not get it. Many of the materials purchased for plant construction have been bought by the United States Shipping Board Emergency Fleet Corporation or other Government agents.

Our practice has been to place a purchase order either with the Fleet Corporation or some other Government agency or to place

orders direct with the vendors designated by them. This corporation took no action in awarding the order or in selecting the vendor, or in arranging the price and terms or other details.

These items represent approximately 20 per cent of our total plant purchases, and of this 20 per cent we estimate that 90 per cent was purchased through Government agency and the other 10 per cent was purchased direct by us from the vendor that the Government might specify.

From the start we were furnished with a list of articles that the United States Shipping Board desired to make purchases of themselves. In such case, they advised us of the name of the article, the price to be paid, etc. This covers articles in great demand for the construction of ships by the Government.

Without taking your time, here [indicating] is a complete treatise of the manner in which all of these articles were purchased through the Government agency.

(The statement referred to is here printed in full, as follows:)

(W-50.)

JANUARY 28, 1919.

M. C. BRUSH, Esq., *President:*

Many of the materials purchased for plant construction have been bought through the United States Shipping Board Emergency Fleet Corporation or other Government agency.

Our practice has been to place the purchase order either with the Fleet Corporation or other Government agency, or to place orders direct with the vendors designated. This corporation took no action in awarding the order or in selecting the vendor or in arranging the price and terms.

The following items were purchased in the above manner: Lumber, piling, railroad ties, wire rope and cable, nails, ammunition and rifles, cement, gravel, stone, sand, coal, fuel oil, passenger automobiles.

These items represent approximately 20 per cent of our total plant purchases, and of this 20 per cent we estimate that 90 per cent was purchased through Government agency and the other 10 per cent was purchased direct by us.

(Signed) ROBT. E. HAMILTON,
*Manager of Purchases.*

If I may, without unduly taking the time of the committee, I would just like to read into the record this extract from the testimony of Mr. Charles M. Schwab before the House appropriations subcommittee in May, 1918:

The CHAIRMAN. So, from a physical and mechanical standpoint, the plant appealed to you?

Mr. SCHWAB. I think that it is splendid. I had not been there before. I was most agreeably surprised with the thoroughness with which the work was being done and the broad manner in which the plant had been laid down.

That, of course, referred to Hog Island.

I would like also to call attention to the statement of Commander Stevenson Taylor, president of the American Bureau of Shipping, which is printed in the record of the hearings before this committee in March of last year.

On page 2387 Commander Taylor says:

In the first place, the plan of the yard is well conceived for the production of the ships in the time mentioned.

And on page 2388 Commander Taylor says:

Thirty ways is the minimum number; 40 certainly better, and 50 even better than 40, when time is such an important element.

The plan for transportation and yardage seems to be appropriate for carrying out the progress. Of course it is necessary that outside lines be made to meet those within the yard.

Senator VARDAMAN. When did he make that statement?

Mr. BRUSH. I can not give you the date; perhaps Mr. Fay can give it.

Mr. C. J. FAY. It was on March 27, 1918.

The CHAIRMAN. March 27, 1918?

Mr. BRUSH. Yes; he also said:

We believe that the sufficiency of the organization will be apparent as the work proceeds.

Considering the unusual demand for labor, the breaking down of the railroad service in transportation and deliveries, and the extreme weather conditions the worst weather known since official records have been made—the results obtained have been remarkable, though extremely expensive.

The labor cost must have been doubled by the aforesaid conditions, even though those planning the yard considered the site and other matters connected with the execution of the construction.

and at page 2389—

These men have gone into this thing with a breadth of vision that to me is remarkable. I think I can consider myself justifiably an old-fashioned man.

* * * But I can see the greatness of this thing; I have the vision to do that; and I sincerely hope that nothing will interfere with the production of their ships on this plan.

That is the statement of the present head of the American Bureau of Shipping. The chairman then asked him the following question (page 2390):

The CHAIRMAN. As to the site of the plant, you found it low and marshy, did you not?

Commander TAYLOR. There is no trouble about that. I believe that is the best place you could have found; I do not know of any better place.

And I should like to quote also the statements of Mr. James French, chief surveyor for the United States and Canada, Lloyd's Register of Shipping, which are found on page 2392 of the hearings before your committee. It is as follows:

I also told him that I considered that the yard was well conceived to carry out the program which had been intrusted to the American International Corporation. I also said that I did not consider that any number less than 50 of ways would be sufficient to complete the program in 22 months; in fact, it was absolutely necessary, in my opinion, to have that number of ways.

Senator VARDAMAN. Have you any hope of completing the program within the 22 months?

Mr. BRUSH. No, sir. Do you mean completing the program for the construction of the ships?

Senator VARDAMAN. Yes; the program with reference to completion of the ships.

Mr. BRUSH. I do not know of any human being, or any power, that could have completed it, after having gone through what these men went through with a year ago.

Senator VARDAMAN. Well, but that was his opinion, as you have just read it.

Mr. BRUSH. Yes. I will continue to read from Mr. French's statement (page 2393):

I do not know that I have anything more to say, Mr. Chairman, except that I have really been astonished to see the progress that they have made since September. I could never have conceived anything of the kind, if I had not seen that yard. It is the greatest thing of its kind in the world, to my mind, because I have visited all the yards in England and Scotland, and in Canada, and in this country. And no one can have any conception of the plant unless they have seen it.

There is no yard like this anywhere.

Palmer's have two yards, and they have about 12 ways between them. As to Harlan and Wolf, I should say that, with their 2 yards in Belfast and 4 yards in Scotland, they may have about 36 ways.

I understand that the new yard, which I believe is a Government yard, put down at Bristol, England, has about 34 ways.

I understand that they are complete; I do not know definitely. They have adopted, I may tell you, the system now used at the Hog Island plant—the fabricated system; and it is the first time in the history of shipbuilding over there that they have adopted that. I think they have taken a leaf out of the American people's book.

I went there in the course of my official duties.

I approved the plan of the yard and also the type of boat.

Mr. BRUSH. I will put into the record, if I may, the total amount of lumber and piling at Hog Island, without taking your time to read it. I will only say that the total number of lineal feet of piling was 7,727,622.

(The statement referred to is here printed in full as follows):

(W-31.)

JANUARY 26, 1919.

LUMBER AND PILING INFORMATION.

| | |
|---|---|
| Number of piling driven | 151,522 |
| Average length (feet) | 51 |
| Total number of lineal feet | 7,727,622 |

RAILROAD TRESTLE.

Figured on basis of 30-foot length, 5-pile bents, 14-foot centers, would make a railroad trestle 137 miles in length (almost the distance from Philadelphia to Washington).

AREA OF PILING.

Piling driven on an average of 5-foot centers, which means 25 square feet per pile, covering approximately 87 acres, which is equal to a plot of ground one-fourth mile wide and one-half mile plus 230 feet long.

PILE FOUNDATIONS.

Thirty-three per cent of all structures on Hog Island property are on pile foundations.

LUMBER.

Total purchased for plant construction, 150,000,000 feet.

MEMORANDUM.

This would make a plank walk 1 inch thick and 12 inches wide, 28,409 miles in length, which is long enough to make a plank walk practically the entire distance around the world and have enough left for a plank walk across the United States.

Senator VARDAMAN. This would be a very good place to put the cost of this whole thing; it is enormous, I am sure: and it is an enormous plant at Hog Island. But I have had a young man estimate for me that if the dollar bills to be spent at Hog Island—66,000,000 greenback dollar bills—were placed from end to end they would girdle the earth at the Equator 330⅓ times. That shows the magnitude of it and the magnitude of the cost. [Laughter.]

Mr. BRUSH. I will ask Mr. Levy to check those figures up for you and see if the young man who gave those figures to you is correct.

Senator VARDAMAN. Well, I just asked somebody to work it out for me.

Mr. BRUSH. Why do you make it $1 bills? Why not make it $10 bills?

Senator VARDAMAN. Because the average man in the country who is paying the expenses of this thing has the $1 bills and has not the $10 bills; he is familiar with the $1 bills but not with the others. [Laughter.]

The CHAIRMAN. Do you not think that anybody but the $1 man is paying it?

Senator VARDAMAN. They are paying it in the last analysis: there is no doubt about that.

Mr. BRUSH. I will not take your time to put in here information which I think should go into the record; it is merely statistical, and I know these things would tire you; but it merely shows the tremendous amount of work which has been done at that plant to account for those possible 330 circlings of the Globe with $1 bills. These statements show the magnitude of the transportation facilities, the cranes, derricks, and marine equipment, and also the telephone system. For instance, you have 1,542 telephones in service at Hog Island. I showed you to-day a photograph of the telephone building. We have above ground, under ground, and in buildings and structures 2,617 miles of wire based on cable and twisted pairs. As a matter of actual fact, this telephone system is about equivalent to a system for a city of the size of Reading, Erie, or Lancaster, Pa.

The photographs of the permanent shops I have shown you.

The fire department consists of four complete fire stations. And you have never had a serious fire at Hog Island.

(The statements referred to are here printed in full, as follows:)

(W-22.)

JANUARY 26, 1919.

NUMBER OF TRANSPORTATION FACILITIES—CRANES, DERRICKS, AND MARINE EQUIPMENT.

| | |
|---|---|
| Railroad: | |
| Locomotives | 16 |
| Passenger cars | 2[illegible] |
| Freight cars | 4[illegible] |
| Motor equipment: | |
| Motor trucks, busses, ambulances, fire equipment, tractors, and automobile business cars | 2[illegible] |
| Trailers | 3[illegible] |
| Horse-driven vehicles, wagons, water wagons, pole wagons, sweepers, sprinklers, dump carts, etc | 3[illegible] |
| Horses | 6[illegible] |

| | |
|---|---|
| Locomotive cranes: | |
| Booms 44 to 70 feet | 70 |
| Capacity, 15½ to 150 tons. | |
| Boom radius (length of boom), 44′–70′. | |
| Fixed derricks on shipways: | |
| 5-ton stiff-legged derricks on towers | 400 |
| 12-ton stiff-legged derricks on ground | 50 |
| 12-ton stiff-legged derrick at training school | 1 |
| Self-propelling gantry cranes: | |
| 7-ton, 50-foot radius | 4 |
| 6-ton, 40-foot radius | 24 |
| Overhead bridge crane, 100-ton capacity | 1 |
| Marine equipment: | |
| Floating derricks, lifting capacity 6 to 65 tons | 7 |
| Pile drivers, 70 to 75 feet lead | 4 |
| Barges and lighters | 17 |
| Tugs | 6 |
| Motor boats | 8 |

(W–24.)

JANUARY 26, 1919.

TELEPHONE SYSTEM.

Total in use, 20 positions, 82 trunks, 1,542 stations.

Average number of calls per day during month December, 1918, 25,976.

Aggregate number of calls from time job started to December 31, 1918, 6,635,051.

| | |
|---|---|
| Miles of wires: | |
| Above ground, exclusive of buildings, based on cable pairs | 393 |
| Underground, based on cable pairs | 2,042 |
| In buildings and structures, based on cable and twisted pairs | 182 |
| | 2,617 |
| Temporary wire, all of which has been taken down | 396 |
| Total miles of wire installed from time job started to Dec. 31, 1918, including temporary wire | 3,013 |
| Number of telephones in service | 1,542 |
| Number of temporary telephones, all of which have been disconnected | 625 |
| Total number of telephones installed from time job started to Dec. 31, 1918 | 2,167 |

Based on information secured from the Bell Telephone Co., our daily traffic compares with the following cities:

| City. | Population. | Number calls daily. | Our highest daily traffic. | Average daily traffic. |
|---|---|---|---|---|
| Reading, Pa. | 142,000 | 31,000 | 31,995 | 25,976 |
| Lancaster, Pa. | 93,000 | 32,000 | 31,995 | 25,976 |
| Erie, Pa. | 115,000 | 25,000 | 31,995 | 25,976 |

In the cities of Reading and Erie there are competing telephone companies.

First telephone installed at Hog Island September 22, 1917, in a checker's shanty.

First switchboard installed October 14, 1917, three trunk lines, 5 stations. Telephone development at Hog Island from October 1, 1917, to December 31, 1918, a period of 15 months, when, based upon similar development in an average community, would be equivalent to approximately 10 to 20 years' growth.

The difficulties of installing the telephone system were varied and trying. Difficulties of maintaining overhead wires were very great, owing to number of locomotive cranes with their long booms constantly tearing down the wires.

(W-29.)

PERMANENT SHOPS.

JANUARY 28, 1919.

Number of buildings: Twelve.

Character: Ten steel frame, covered with corrugated iron and two wood frame construction. Floor area, 800,000 square feet.

Handling equipment: Modern electric traveling cranes.

List of shops (12 shops): Galvanizing shop, pipe shop, pipe shop annex, machine shop No. 1, machine shop No. 2, maintenance shop, smith shop No. 1, smith shop No. 2, smith shop annex, plate and angle shop, plate and angle shop No. 2, welding shop.

Number of men employed: Average for month of December, 1,284 men.

Shop equipment: Modern machinery and equipment of all kinds; all machinery electric or hydraulic driven.

(W-26.)

GUARD AND FIRE PROTECTION.

JANUARY 28, 1919.

Number of fire stations: Four.

Convenience of location: So located that department can reach any portion of the yard within 2 minutes 30 seconds after sounding of alarm in fire station.

*Equipment.*—Two stations with two combination pump and hose wagons, capacity 750 gallons per minute, carrying 1,000 feet of 2½-inch hose.

One combination hose and chemical engine, carrying 1,000 feet of 2½-inch hose and one 50-gallon chemical tank with 200 feet of ¾-inch rubber chemical hose.

One city service truck, fully equipped, carrying 50-foot extension ladder.

Two hose tenders, carrying 750 feet of 2½-inch hose.

Two chief's cars.

One chemical engine with two 35-gallon tanks.

Two stations with four combination hose and chemical engines, carrying 1,000 feet of 2½-inch hose, and one 50-gallon chemical tank with 200 feet of ¾-inch rubber chemical hose.

Two hose tenders, carrying 750 feet of 2½-inch hose.

*Total equipment (all equipment gasoline-motor driven).*

| | |
|---|---|
| American La France combination pump and hose wagons | 2 |
| Brockway combination hose and chemical trucks | 5 |
| City service hook and ladder truck | 1 |
| Chemical engine with two 35-gallon tanks | 1 |
| Chief's cars | 2 |
| Hose tenders | 4 |
| Pieces | 15 |

Personnel: Seventy-two officers and men, who, in addition to their duties of manning fire stations, maintain constant patrol through shipyard and buildings.

Alarm system: 409 boxes.

*Fire extinguishers.*—Buildings equipped with a total of 4,247 chemical extinguishers; containers, 829; water buckets, 985; water barrels, 430; hose reels equipped with hose, 194; axes, 42.

*Fire Hose.*—Including fire hose on apparatus: Fire apparatus and hose reels a total of 56,700 feet of hose, which would reach a distance of over 10.7 miles.

*Marine fire protection.*—Six tugs, equipped with fire-fighting apparatus, and 150 feet of 2½-inch double-jacket, rubber-lined hose. One tug, pump capacity 400 gallons per minute; 2 tugs, pump capacity 300 gallons per minute; 3 tugs, pump capacity 250 gallons per minute.

*City fire department.*—The fire department and equipment at Hog Island is sufficient to protect an ordinary city of 50,000 population.

*Guards.*—Number, October, 1918, 545 men; January 25, 1919, 227 men.

*Water protection.*—Two fast motor launches, equipped with machine gun and carrying crew of four men each.

*Statistics.*—For the year 1918, 16,433 cases and investigations handled; 433 draft delinquents turned over to the Department of Justice; 254 alien enemies either turned over to the Department of Justice or escorted from the island.

I think this statement with regard to the commissary department should go in the record, Mr. Chairman.

As a matter of actual fact, they have carried on at the island since they started a commissary business which, like the rest of our operations, is under the general direction of the Fleet Corporation, and they have served on the island 4,369,000 meals, plus 74,910 box lunches. They have done this over a period of 16 months, and in addition to the meals served they have barracks buildings in operation to the number of 46, with a sleeping capacity of 4,400; average number of beds furnished one night since the beginning of the job to December 31, 1918, 4,113. The amount of equipment required in these barracks is 50,984 beds, cots, blankets, quilts, mattresses, sheets, pillow cases, etc.

The commissary department has been in operation for 16 months, and during this period the income from operation exceeds the cost of labor and supplies by a total of $47,000, or an average of approximately $2,937.50 per month, which is about as close as it can be run on the basis of a policy to break even; in other words, not make any money from the employees for the furnishing of meals, beds, and other necessities.

In conducting our commissary operations, like all the other of our operations at Hog Island, we are acting as the agents of the Fleet Corporation, and this profit is credited to the job.

(The statement referred to is here printed in full, as follows:)

(W-23.) JANUARY 27, 1919.

COMMISSARY DEPARTMENT.

| | |
|---|---|
| Hotels | 2 |
| Main cafeteria | 1 |
| Service restaurants | 12 |
| Mess halls | 2 |
| Guards' mess halls | 3 |
| Small construction camps | 3 |
| Total | 23 |
| Seating capacity at one time | 10,450 |
| Total number of meals served in December, 1918 | 420,000 |
| Aggregate number of meals served from beginning of job to Dec. 31, 1918 | 4,369,000 |
| Plus box lunches | 74,910 |

*General information showing magnitude of operation.*

| | |
|---|---|
| Maximum capacity of all eating places in one period of 45 minutes | 17,800 |
| Range surface ... square feet | 1,240 |
| Dish-washing machines; capacity, 100,000 pieces per hour | 21 |
| Pieces of dishes, glassware, silverware, waiters' trays, etc | 259,900 |
| Baking capacity in 24 hours ... tons | 21 |

*Consumption of foodstuffs since job started.*

| | |
|---|---|
| Loaves of bread (3 pounds each) | 225,475 |
| Potatoes ... pounds | 1,728,000 |
| Cabbage ... do | 153,400 |
| Onions ... do | 136,000 |
| Carrots ... do | 85,000 |

| | | |
|---|---|---|
| Fresh apples | boxes | 6,[illegible] |
| Dried beans | pounds | 131,4[illegible] |
| Flour and substitutes | do | 1,448,2[illegible] |
| Meats | do | 1,498,3[illegible] |
| Poultry | do | 41,9[illegible] |
| Fish | do | 187,1[illegible] |
| Butter | do | 117,9[illegible] |
| Sugar | do | 450,[illegible] |
| Eggs (1,499,400 eggs) | dozen | 124,9[illegible] |
| Coffee | pounds | 113,2[illegible] |
| Canned milk | cans | 154,4[illegible] |
| Fresh milk | quarts | 191,2[illegible] |
| Fresh cream | do | 43,4[illegible] |
| Canned fruits and vegetables | gallons | 101,3[illegible] |
| Vegetables (2-pound cans) | cans | 468,4[illegible] |
| Evaporated fruit | pounds | 46,5[illegible] |
| Ice cream | quarts | 100,5[illegible] |
| Lard and shortening | pounds | 135,8[illegible] |

*Barracks.*

| | |
|---|---|
| Number of barrack buildings in operation | 4[illegible] |
| Sleeping capacity | 4,4[illegible] |
| Average number of beds one night since beginning of the job to Dec. 31, 1918 | 4,11[illegible] |

*Amount of equipment required.*

| | |
|---|---|
| Beds, cots, blankets, quilts, mattresses, sheets, pillow cases, etc | 50,984 |

In connection with that, the housing question has been discussed, and I have here a statement from Mr. W. F. Wilmoth, the Emergency Fleet Corporation representative in charge of the housing for Hog Island. I think that should be made clear to the committee because it has been discussed several times before.

We have near Hog Island, in addition to those barracks to which I have just referred, containing sleeping accommodations for 4,400 men—which have been self-supporting—a 2,100-room hotel which the Emergency Fleet Corporation has constructed, about 1¼ miles north of Hog Island, which we have nothing to do with other than to operate for the account of the Emergency Fleet Corporation.

In addition to the 1,554 new houses built for ship workers—953 of which have been completed and rented and 601 houses now under construction and will be completed by spring—436 houses were already built or in the process of construction and were requisitioned by the Fleet Corporation, making the total program for houses for Hog Island workmen 1,990 houses.

Senator RANSDELL. Do you mean rooms or houses?

Mr. BRUSH. Houses, in the latter case. This report [indicating] is made by a representative of the Emergency Fleet Corporation. He says [reading]:

(W-32.)

STATEMENT TO MR. M. C. BRUSH, PRESIDENT, REGARDING HOUSING FOR HOG ISLAND.

The housing program for Hog Island called for 1,990 houses: 1,554 new houses and 436 which were already built or in process of construction and which were requisitioned by the Fleet Corporation.

Of the 1,554 new houses, 953 have been completed and all are rented but a few, the leases for which will be signed during the present week.

The 601 houses now under construction will be completed in the spring.

The new houses are being rented to shipyard employees for $24 and $26 a month, except the corners, which are higher. This shows a gross income on the total investment of 8½ per cent, or about 6 per cent net.

A considerable number of the new houses have been sold to shipyard workers at 5.3 per cent less than their actual cost to the Fleet Corporation, including the cost of buildings, land, and all improvements.

Since the armistice has been signed the housing situation in Philadelphia has somewhat improved and it was decided that the 1,554 new houses would be sufficient to take care of the shipyard employees. It was, therefore, determined to get rid of the scattered houses which were requisitioned throughout the city, and 300 of these have already been sold, mostly to the general public, showing a loss to the Fleet Corporation of a little less than 8 per cent on the cost.

All the 1,990 houses are of substantial brick construction, in well built-up portions of the city, all of the new houses containing six rooms. The total cost of the 1,990 houses will be about $6,800,000, or $3,417 each. Included in the above is a surplus of ground, amounting to 434 lots, which can be sold for at least $150,000, further reducing the loss to the Fleet Corporation. The sales that have been made demonstrate that there is a demand for the properties and that they can be sold to the employees of the shipyard and to the general public at a loss to the Fleet Corporation not exceeding 10 per cent of the total cost.

W. F. WILMOTH.

January 29, 1919.

That report is from Mr. W. F. Wilmoth, the representative of the Fleet Corporation, and it may be of interest, in view of the testimony at your hearing a week ago.

Senator VARDAMAN. Does that mean that the Fleet Corporation bought houses and then sold them?

Mr. BRUSH. Yes, Senator.

The CHAIRMAN. It requisitioned them?

Mr. BRUSH. Yes, it requisitioned them; and we had nothing to do with it, you understand.

Senator VARDAMAN. I know; but as a matter of fact, has real estate in Philadelphia declined in that time? Why should there have been a loss on those houses?

Mr. BRUSH. I have only lived in Philadelphia since the 13th of December; so I am not qualified as an expert on real estate.

Senator VARDAMAN. Well, you were reading about that.

Mr. BRUSH. Of course, I can not give figures as to Philadelphia real estate costs, but [Mr. Levy here interrupted Mr. Brush and passed a paper to him]—Mr. Chairman, may I stop here just a moment and explain that Mr. Levy has had checked this memorandum which Senator Vardaman handed me a few minutes ago in which the Senator stated that he had a young man estimate for him that, if dollar bills were placed end to end in an amount equivalent to the cost of Hog Island, they would girdle the earth at the Equator 330⅓ times. I find that the young man who made this calculation for Senator Vardaman made a mistake of approximately 100,000 per cent. He got twisted on his decimal points. Instead of this amount of money being equivalent to dollar bills laid end to end encircling the globe 330⅓ times, it actually figures that they would extend over a distance of about 7,709 miles, or not quite one-third the distance around the globe once. I am correct in that, am I not, Mr. Levy?

Mr. LEVY. Yes.

Mr. BRUSH. That is some error.

The CHAIRMAN. That is a slight error.

Mr. BRUSH. Well, if we ever made an error like that we would probably be sent to jail.

Senator VARDAMAN. He is about as lax in his estimate as the corporation was in figuring the cost of Hog Island.

Mr. BRUSH. Yes; but he did not have to make any guesses. All he had to do was multiply, point off, and divide correctly, which is simple mathematics. Further, he had a beautiful day on which to do his work, while we did ours with a temperature of 4° below zero. Further, he was not called upon to make any guesses or to use his judgment without knowing what conditions with which he was to be confronted or what the future might hand him. He could readily find out by measuring a dollar bill that it is approximately 7¼ inches long and knew perfectly well there was no danger of the Macy Board stretching the bills or the transportation of the country making the bills longer or shorter. [Laughter.]

I will not bother you, Mr. Chairman, with the statistics regarding loaded cars received, etc. But I think it is of interest to the committee to know that, from the time we started at Hog Island until the present moment, with the weather conditions that they had there last winter, and the backing up of cars, etc., the total demurrage amounted to only $42,040. The total number of cars received was 49,593. In other words, I merely put that in because comment has been made that they had at Hog Island 1,300 cars backed clear to Kansas City, Mo., or some such place, and that Hog Island was responsible for all the freight congestion last winter. If that is true, our demurrage should certainly be more than $42,040.

And Mr. Levy states that since the 1st of last April, our total demurrage has been only about $1,000. I would like to have this statement as to loaded cars received inserted in the record.

(The statement referred to is here printed in full, as follows:)

(W-14-C.) JANUARY 28, 1919.

*Statement of loaded cars received.*

| Month. | Cars received. | Average per day. | Demurrage charges. |
|---|---|---|---|
| **1917.** | | | |
| October | 549 | 11 | |
| November | 1,755 | 58 | [illegible] |
| December | 2,494 | 80 | [illegible] |
| **1918.** | | | |
| January | 3,399 | 110 | [illegible] |
| February | 4,178 | 149 | [illegible] |
| March | 4,205 | 136 | [illegible] |
| April | 4,006 | 134 | [illegible] |
| May | 4,330 | 140 | [illegible] |
| June | 3,869 | 129 | [illegible] |
| July | 4,553 | 147 | [illegible] |
| August | 3,914 | 126 | [illegible] |
| September | 3,630 | 121 | |
| October | 3,372 | 109 | [illegible] |
| November | 2,761 | 92 | [illegible] |
| December | 2,578 | 83 | [illegible] |
| Total | 49,593 | 108.5 | 42,[illegible] |

From October, 1917, to February 1, 1918, demurrage rate was $2 to $5 per day after the first 48 hours. From February 1, 1918, to December 31, 1918, $3 to $10 per day.

On the old standard demurrage charges of $1 per day, which were superseded April 1, 1916, total demurrage payments would have been $11,850 instead of $42,040.

Since March, 1918, total demurrage paid on inbound shipments, $930, of which $624 will be collected from contractors and others, leaving $306 due to fault of A. I. S. C. for a period of nine months, an average of $34 per month, or slightly in excess of $1 per calendar day.

This demonstrates the original plan contemplated adequate facilities at Hog Island for releasing loaded cars.

Demurrage prior to March 1, 1918, due to weather conditions, delay in material for constructing railroad tracks for unloading other cars, and to conditions in general, resulting from starting such huge operation from zero and attempting to rush during very severe winter weather. Also to accumulating large amount of construction material which was used to good advantage when weather broke.

I should like also to have inserted this statement with regard to trolley lines, steam, and boat transportation.

(The statement referred to is here printed in full, as follows:)

(W-9.) JANUARY 26, 1919.

TROLLEY LINES, STEAM, AND BOAT TRANSPORTATION.

On July 15, 1918, the Southwestern Trolley Line started operation to Hog Island.

On August 4, 1918, the Philadelphia Rapid Transit Co. started operation to Hog Island.

Prior to July 15, 1918, and August 4, 1918, the only trolley transportation to the island was P. R. T. Chester Short Line at approximately Ninety-fourth and Eastwick Avenue, about 1¼ miles from the shipyard.

About January, 1918, A. I. S. C. built double track shuttle line between shipyard and Ninety-fourth and Eastwick Avenue, and provided steam shuttle service between Hog Island and Ninety-fourth Street and Eastwick Avenue, connecting with trolley lines.

| | |
|---|---|
| Total number of people transported to and from Hog Island from Nov. 1, 1917, to Dec. 31, 1918, a period of 14 months | 12,491,000 |
| Average number of passengers transported to and from Hog Island per day during month of September, 1918: | |
| Steam roads | 9,661 |
| Philadelphia Rapid Transit electric | 25,112 |
| Southwestern electric | 8,443 |
| Boat | 1,650 |
| Total | 44,866 |

GENERAL INFORMATION COVERING TRANSPORTATION LINES.

*Southwestern Line.*

| | |
|---|---|
| Distance from Hog Island to Third and Jackson Streets (end of line) miles | 6.67 |
| Number of cars transporting passengers on this line cars | 50 |
| Number of feet of new construction necessary to reach Hog Island (Penrose Ferry to Hog Island): | |
| Single track | 15,100 |
| Double track | 30,200 |
| Sidings and turnouts | 3,831 |
| Total amount of money advanced by E. F. C. for purchase of cars, etc | $942,000 |

*Philadelphia Rapid Transit Co.*

| | |
|---|---|
| Distance from Hog Island to Fortieth and Market Streets (end of line) miles | 8.09 |
| Number of cars transporting passengers on this line | 100 |

Number of feet of new construction necessary to reach Hog Island (Eastwick Avenue and Island Road to Hog Island):
Single track ---------- 15
Double track ---------- 30
Total amount of money advanced by E. F. C. for purchase of cars, etc ---------- $1,8[illegible]

*Philadelphia & Reading Railway (steam line).*

Number of trains run to and from Hog Island:
Wayne Junction ----------
Thirty-first Street and Girard Avenue ----------
Forty-ninth Street ----------

Total ----------
Average number of cars in each train ----------
Track feet of new construction necessary to reach Hog Island (connection between P. & R. Chester branch at Ninetieth Street and A. I. S. C. Shuttle Line at Ninety-fourth Street) ----------

*Pennsylvania Railroad (steam line).*

Number of trains run to and from Hog Island:
Broad and Washington Avenue ----------
Average number of cars in each train ----------
Track feet of new construction necessary to reach Hog Island (Sixtieth Street line connecting with Maryland division of P. R. R. at Fifty-eighth Street, and Fort Mifflin branch P. R. R. at Hog Island):
Single track ---------- 19.0
Double track ---------- 38.0

*Boats.*

Largest number of boats used in any one month ----------
Average rate of fare ---------- cents
Average distance covered between Hog Island and starting point ---------- miles

*Rate of fare on steam and trolley lines.*

| | 12 rides. | 1 r |
|---|---|---|
| Pennsylvania R. R.—Broad and Washington Avenue | $1.25 | |
| Philadelphia & Reading Ry.: | | |
| Wayne Junction | 1.55 | |
| Thirty-first Street and Girard Avenue | 1.22 | |
| Forty-ninth Street | 1.20 | |
| Trolley lines: | | |
| Philadelphia Rapid Transit | ..... | |
| Southwestern | ..... | |

Mr. BRUSH. That statement shows, among other things, t the total number of people transported to and from Hog Isla from November 1, 1917, to December 31, 1918, was 12,491,000.

The CHAIRMAN. That is all charged up against the construct account, is it not?

Mr. BRUSH. Those, Mr. Chairman, are the men going to and fr the city, and paying their fare on the trolleys and on the steam ra roads. There is some charge against Hog Island for that, represe ing certain transportation expenses we absorbed in the early stag of the work, with the full approval of the Fleet Corporation.

The CHAIRMAN. You do not mean that the men paid their own fare out of their pockets, do you?

Mr. BRUSH. Yes; to and from the plant. We absorbed certain excesses over the amount of the fares paid by the men.

The CHAIRMAN. Did they not get reimbursed for the cost?

Mr. BRUSH. No, sir.

The CHAIRMAN. It came out of their pay, did it?

Mr. BRUSH. Yes, Senator.

Senator VARDAMAN. What was the testimony on that here the other day? It was different from what Mr. Brush says.

Mr. BRUSH. Do you know of any instance where the company paid their fare, Mr. Levy?

The CHAIRMAN. Yes; I think they did that at one time.

Senator VARDAMAN. Somebody testified before the committee the other day as to the amount the Government paid and gave it as a very considerable sum.

Mr. BRUSH. Mr. Chairman, Mr. Levy tells me that we have some figures on this with us and that the Fleet Corporation approved of our company absorbing all of some transportation charges for the men and a portion of other transportaion charges over and above what the shipworkers paid for transportation to and from their work; in fact, he tells me that the award of the Macy Board of February 14, 1918, specifically authorizes this. It seems that some free trains for yard laborers have been run to the island on the approval of the Fleet Corporation, and when the workers are forced to pay more than 10 cents to and from the island and the destination of the train or boat they ride on, the excess is absorbed by the shipyard, and on one trolley line serving the island, which line is being operated by the Fleet Corporation, the men pay 5 cents for each ride and we pay the trolley line 5 cents for every one of our workers they carry. Also we operate a shuttle steam train between Hog Island and Ninety-fourth and Tinicum Avenue connecting with the Chester Short Line trolley line of the Philadelphia Rapid Transit Co. Since the job started our expenses for transportation of workers as I have outlined amounts to approximately $499,931.60 divided as follows:

| | |
|---|---|
| Philadelphia & Reading | $124,139.87 |
| Pennsylvania R. R. | 154,990.82 |
| Steamboats | 124,906.09 |
| Expense of operating shuttle trains (estimated) | 74,374.36 |
| Difference between cost of railroad tickets purchased in October, November, and December, 1917, and amount collected from employees | 21,520.46 |
| Total | 499,931.60 |

On considering these figures it must be remembered that at the time we commenced work there were practically no transportation facilities at all and some adequate arrangements had to be made and quick, too, to provide reasonable transportation for the workmen.

There is one other statement I want to put in. I want to put in a record of the surgical, medical and sanitary situation at Hog Island, which I think is perfectly remarkable. We never have had any epidemics of contagious diseases there; we have never had malaria [knocking the wooden table], typhoid, and anything of that character there which has injured us in connection with the work ex-

cept the influenza, and the influenza last fall did put a lot of the men out of commission.

Senator VARDAMAN. Have you had any influenza there?

Mr. BRUSH. Very much; it was all through Philadelphia.

Senator VARDAMAN. Somebody testified before the committee that that was the reason why you did not build any ships.

Mr. BRUSH. I do not know about that. I know the influenza set them back last year about two months. I think that is a perfectly fair statement. And I think this medical statement should go into the record.

The CHAIRMAN. Very well.

(The statement referred to is here printed in full, as follows:)

"W-5"

JANUARY 27, 1919.

SURGICAL, MEDICAL, AND SANITARY DEPARTMENTS.

[Organized Nov. 15, 1917.]

Functions: Surgical, medical, dental, sanitary.

Hospitals: Surgical, medical, 5 first-aid stations on ways and wet basins.

Equipment. Surgical hospital: Complete general operating room; completely equipped surgical wards, 2; beds, 28; first-aid room for walking patients, 1; modern X-ray department, 1; special room for eye, ear, nose, and throat, 1; hydrotherapeutic room for heat strokes and sunstrokes, 1; completely equipped redressing room, 1; complete dental clinic, 1; ambulances, 3.

Character of equipment: All equipment is modern and ample.

Results: There have been no complaints as to maltreatment or the lack of prompt surgical assistance.

Base hospital: Contract with Misericordia Hospital in West Philadelphia.

*Statistics.*

| | |
|---|---|
| Fourteen months in operation. | |
| Surgical cases treated (major and minor) | 58,[illegible] |
| No fatalities resulting from surgical infection or blood poisoning. Not one single case of lockjaw, notwithstanding low, swampy land and heavy humidity. | |
| Time-losing accidents (1 day or more), 3.75 per cent | 2,1[illegible] |
| Medical hospital: Capacity (beds) | [illegible] |
| Medical dispensary: Cases treated | 12,1[illegible] |
| Equipment: Modern. | |
| Hospital cases | 1,[illegible] |
| Average number of beds occupied daily | [illegible] |
| Hospital cases (city) | [illegible] |
| Cases handled during recent epidemic | 3,[illegible] |

*Statistics—Hospital.*

| | |
|---|---|
| Ambulance trips on Island to emergency hospital | 4,2[illegible] |
| Ambulance trips from emergency hospital to Philadelphia | 1,[illegible] |
| Total | 5,2[illegible] |
| Dental patients treated | 6,[illegible] |
| Eye cases treated | 14,[illegible] |
| X-ray plates taken | 16,[illegible] |

Fatalities:

| | |
|---|---|
| Accidents in course of employment | [illegible] |
| Accidents other than in course of employment | [illegible] |
| Natural causes | [illegible] |
| | [illegible] |

DEPARTMENT OF SANITATION.

*Functions:* All functions of a board of health of a modern municipality.

Inspection and control of water supply, sewage disposal, food, housing, live stock, fumigation and disinfection, physical examination, inspection, and control of laboratory.

*Information:* The department of sanitation has directed and conducted the most successful mosquito and antimalaria campaign ever conducted in the State of Pennsylvania.

This department has controlled the purification and delivery of drinking water from the Delaware River at the point of its highest pollution to an industrial population of over 30,000 without a record of a single case of typhoid fever or other water-borne disease.

The mosquito and fly campaign was not confined to Hog Island alone, but extended to all surrounding territory equal to three times the area of Hog Island.

Mr. BRUSH. I think it is a credit to the medical profession of the United States for those doctors and surgeons in charge of that work to have done what they have done—to do away with mosquitoes and flies and drain that entire 846 acres and also drain and put in a sanitary condition an area of three times the size of the shipyard to protect the ship workers. The milk is tested every day and the food is tested every day and the water is tested. As a matter of actual fact, we take water out of the Delaware River and treat it and use it for all purposes on the island, and so treat it again after we are through with it, as sewage, that when we put it back into the Delaware River it is in better condition than it was in the first place. And that is not my opinion; it is the statement of the officials of our sanitary department.

Now, I do not want to take your time, Mr. Chairman, but I believe there should go into your record some of this information we have compiled, on which there is a very radical difference of opinion, as to whether this institution was, for the Government and under the direction of the Government, an asset to you during the war, entirely aside from the number of ships produced. I have before me a clipping from the New York Tribune——

Senator VARDAMAN (interposing). That is a mere matter of opinion. The facts that you put in here can speak for themselves, and the people who have studied the matter can draw their own conclusions, and it is not necessary to cumber the record with newspaper clippings.

Mr. BRUSH. I do not propose to put in newspaper clippings. But we have the statements here from some of the most prominent men in the world who have visited Hog Island; and this book [indicating] is made up of statements of those men; it is made up of statements by such men as Lord Reading——

Senator RANSDELL (interposing). I think it would be important to put that in.

Senator VARDAMAN. I have no objection to that.

The CHAIRMAN. Not newspaper clippings, but the statements of Lord Reading and other men of that kind, if you have them; they can be inserted in the record.

Mr. BRUSH. I will not put newspaper clippings in.

Instead of doing that, I will go through this book and leave out a number that I think would not be of substantial interest to you; but I do believe there is some very interesting data here, especially if a man raises a question as to whether or not Hog Island should have

been built, and as to whether it should have been used, especially from a propaganda standpoint.

Senator RANSDELL. I think that would be especially interesting, especially if you can get those statements from prominent men who live in shipbuilding countries.

Mr. BRUSH. Yes.

Senator RANSDELL. I suppose you have some from Great Britain, Norway, and Japan.

Mr. KNIGHT. From nearly every nation.

Mr. BRUSH. Yes; and not only from those nations, but from men who are vitally interested in shipbuilding in those nations.

Senator RANSDELL. Yes.

Mr. BRUSH. I think one of the problems with which Hog Island has been confronted has been the fact that Hog Island has been used for the past 16 months as an advertisement for the United States Government as to what it could do and was going to do in the building of ships, and that probably Hog Island, if it had not had any more publicity than any of the other shipyards on the Delaware River or on the Atlantic or Pacific coast, would not have had a great deal of the unfortunate publicity that it has had.

But Hog Island has been deliberately advertised by the United States Government representatives.

I have here a statement from a representative of the consular service of our country in foreign countries where they have undertaken to make clear to our allies that the United States was in the war to the finish, and that we intended to build ships, and to build ships as promptly and as efficiently as we could, and, naturally, Hog Island has received a tremendous amount of advertising.

Senator RANSDELL. You have statements there that indicate that, have you?

Mr. BRUSH. Yes.

Senator RANSDELL. I would like to know about that; I would like to know about the psychological effect of the building of Hog Island.

The CHAIRMAN. You need not cumber the record, but you can put in enough material to show what the moral effect of the construction of Hog Island has been, the opinions of prominent men in different countries about it, and so on.

Mr. BRUSH. I will do so, thank you, Mr. Chairman.

Advantage was taken of these expressions of opinion, coming as they did from prominent officials and citizens of this and other countries, to use them in the yard and in the Hog Island local paper to keep before the men the great importance with which the Hog Island project has been and is regarded, not only in this country but in the allied and other foreign countries.

(The letters, statements, and other material submitted by Mr. Brush in response to the request of Senator Ransdell are here printed in full, as follows:)

President Wilson, after attending the launching of the *Quistconck* on August 5, 1918, said:

"I think the best thing to say about Hog Island is to admire it and say nothing. I thank you all for the reception you have given Mrs. Wilson and myself. We have been working very hard at Washington and I can see that you have been doing the same here. What I have seen at Hog Island is wonderful."

Chairman Hurley cabled Gen. Pershing June 26, 1918:

"Not by delaying a single ship, but by speeding to the utmost, the American shipyards will launch nearly 100 ships July 4. On this day, celebrating the Nation's independence and backing up boys in the trenches, the men in the shipyards will launch 450,000 deadweight tons—as much as was launched in six months last year. Your inspiring leadership of the American Army in France has thrilled the shipyard workers, and, if the time comes when you need even the shipyard men over there, they will go to the last man. We want you and the boys in the trenches to know that the men in the yards are going the limit to provide in record-breaking time the ships that will carry more men, food, and munitions to the intrepid American Expeditionary Forces. A cablegram from you, to be read in the shipyards July 4, will arouse increased enthusiasm."

Gen. Pershing cabled Chairman Hurley July 4, 1918:

"The launching of 100 ships on the Fourth of July is the most inspiring news that has come to us. All ranks of the Army in France send their congratulations and heartfelt thanks to their patriotic brothers in the shipyards at home. No more defiant answer could be given to the enemy's challenge. With such backing, we can not fail to win. All hail, American shipbuilders."

Gen. Pershing, on September 18, 1918, sent this cable of appreciation to Hog Island:

"Many thanks for your birthday cable, which is deeply appreciated. The news of the continual speeding up of America's shipbuilding makes us more confident of victory. My hearty congratulations to you and to the workers of the Hog Island shipyard."

The three foregoing cables were conspicuously posted through the entire Hog Island yard.

William S. Sims, admiral, United States Navy, on September 17, 1918, wrote to a Hog Island foreman as follows:

"The Hog Island achievement has attracted attention all over the world, and the production is well known over here, as it is in America. We all feel that the success of the allied cause depends primarily upon the success of works of this kind."

Admiral Sims' letter was also posted throughout the yard.

Mr. Charles M. Schwab, director general, Emergency Fleet Corporation, after visiting Hog Island on April 27, 1918, soon after he had taken his office, said:

"I was delighted at the progress made at Hog Island. It is one of the largest operations I have ever seen. I am exceedingly optimistic about the work and know I will not be disappointed. I only ask the people to have patience and I know they will be rewarded."

Hon. William C. Redfield, Secretary Department of Commerce, on July 6, 1918, said:

"I was much impressed with the magnitude of the operations, and it gives promise of working a wonderful change not only in this country but throughout the world. It embodied the principles I had long hoped for."

Hon. John Skelton Williams, Comptroller of Currency, on June 26, 1918, said:

"The work which has been accomplished on those 800 acres of land since September last is illustrative of what America can do in this great industrial age."

Lord Reading, Lord Chief Justice of England, and Great Britain's special ambassador to the United States, visited Hog Island June 1, 1918. In his party were Maj. John E. D. Swinton, inventor of the famous "tanks"; Maj. Caraufurd Stewart of the ambassador's staff; Sir Henry Babbington Smith, of the ambassador's staff, Assistant British High Commissioner; Sir Thomas Boyden Brett, commissioner of shipping, and Sir Richard Crawford, commercial advisor to the embassy. Lord Reading said:

"You are behind our generals creating a war machine that is nothing short of staggering. It is largely upon this machine of war which you are now building that I am founding my hopes of a blow that will strike terrifically at the ambitions of Germany. It is wonderful, wonderful. You Americans, when you wake up to things, create something that produces with tremendous rapidity.

"This is an astonishing undertaking. I am certainly impressed with the largest amount of construction work accomplished at Hog Island in such a short space of time. If you continue to go along as fast as you are going at present, you will go a long way toward solving the submarine problem."

Maj. Gen. Swinton, inventor of the British "tanks," when he visited Hog Island June 18, 1918, said:

"Hog Island is marvelous, but you must realize that when a Nation with the resources of this one sets out under the strain of war to build anything, it is only natural that one of the greatest plants in the world should result."

Sir James McKenzie, F. R. C. S., of England, Sir Williams Arbuthnot Lane, noted British surgeons, and Col. Herbert Alexander Bruce, of Toronto, Canada, saw the Hog Island plant June 24, 1918. Sir James McKenzie said:

"British authorities have no conception of what has been done. I am amazed at the progress and I am sure every other Englishman would be if he could only see it."

P. H. Wilson, correspondent of the London Daily News, and former member of Parliament, on February 23, 1918, said:

"We are immensely impressed with the magnitude of the preparation; also with the wonderful organizing efficiency of what we have seen."

C. Maughan, representative of the London Daily Times and British Admiralty, stated June 7, 1918, that he had traveled very extensively and had never seen anything that approached this undertaking in magnitude or in excellence of construction.

Right Rev. Bishop Gore, of Oxford, England, on November 21, 1918, said:

"It is the most wonderful sight I have ever seen. It is something every American ally should be proud of. It is something that can not be visualized until it has been seen."

British medical mission on November 5, 1918, consisting of Col. Sir Thomas Myles, Dublin; Maj. G. Gray Turner, Newcastle-on-Tyne, and Col. George E. Gask, London, saw the yard. Col. Myles wrote:

"It is really a wonderful work and nothing made a deeper impression on me than the visit to the great yard. Thank God the war is practically over, and let us hope very soon the good ships you are building will be carrying food and stores to starving Europe, no longer under the terrible menace of the cowardly U-boat."

Sir William Maxwell, of Calcutta, on July 2, 1918, said:

"Very much pleased and think it incredible that the work has been done in so short a time."

W. H. Merry, K. J. Patterson, F. Simonett, all from Australia, where they are general contractors, on May 30, 1918, said:

"They felt well repaid for stopping over to see Hog Island, as it was the greatest thing they had ever seen and, as they were contractors, they had some comprehension of the difficulties with which the work had to contend and that they had been overcome in a wonderful manner."

Lieut. Wiezbicki, of France, said after seeing the yard on June 10, 1918:

"This, Hog Island, is one of the two most important places in the world to-day. The other is the River Marne."

French High Commission, headed by Edouard de Billy, director general; Francois Monod, chief of cabinet; Charles J. Gillet; Henri-Martin Barzun, J. F Lacombe, A. Rio, L. Nicol, Lieut. H. Marquisan visited Hog Island November 23, 1918.

"The members of the French commission were loud in their praises of the work at Hog Island, and spoke particularly of the psychological effect, of building this yard, on the allies. They also said that they thought it had the effect on Germany of making her realize more than anything else the wonderful resources of the United States of America."

Paris newspaper men: Monsieur J. de Marsillac, London correspondent of the Paris Le Journal and secretary of the Foreign Press Association, with other Paris newspaper men, visited the yard about August 22, 1918. Afterwards M. Marsillac said in his paper Le Journal, published in Paris:

"It is simply marvellous. I have been along the Thames and the Clyde and to practically all the shipyards in England and France, but there are none that equal the Hog Island yard, either in size or in the hustling spirit shown by the employees. Hog Island is, without a doubt, in the industrial domain, the most immense work that has ever been conceived and executed in the history of the world—in short, this whole enterprise is almost superhuman and is working irresistibly toward victory. The method is unbelievable in its simplicity, rapidity, and efficiency, when one considers that these parts which fit so exactly came from one or another of 3,500 fabricating shops, all contributing to this piece of construction. These were familiar methods of production in certain

industries such as the automobile industry, but they were unknown, and I may say considered practically impossible for ship construction, contrary to all theories and all precedent, but an idea, which, fortunately for us, proved itself successful." (Translation.)

Commander Levdouerine, of the French technical mission, including Col. Mortmour, Capt. Noulton, and Lieut. Bertvier saw the yard October 8, 1918, and said:

"We are greatly surprised at the magnitude of what we have seen to-day. These facts are a great comfort to us. We will know in the thick of the battle America is with us."

Commander E. Davaux, referring to the visit of himself and Capt. J. Debry, of the French Navy commission, to Hog Island, wrote on November 9, 1918:

"They wish also to express their appreciation of the magnificent efforts made by the American International Shipbuilding Corporation and of the results obtained, which will so greatly help the American and allied Governments during the restoration period."

Jacques de Marsillac, special represenative of Le Journal, Paris, also wrote to his paper an article on Hog Island, of which the following is a translation:

"THE EIGHTH WONDER OF THE WORLD.

"PHILADELPHIA, *September, 1918.*

"In 1914 the largest shipyard in the world contained 15 ways, and had launched 150,000 tons in its best year. The shipyard of Hog Island, located near here and cradle of the 'fabricated' ship, has 50 shipways, and an annual productive capacity of 1,500,000 tons dead-weight. Comment is unnecessary; Hog Island is without a doubt, in the industrial domain, the most immense work which has ever been conceived and executed in the history of the world."

Then followed description of the entire project, going into the construction of the yard and of the ships, all at great length, concluding with, "In short, this whole enterprise is almost superhuman and is working irresistibly toward victory."

Article from Oui, published in Paris, November 16, 1918 [translation]:

"ARTICLE ON SHIPPING MATTERS—MORE SHIPS—SHIPS, SHIPS, SHIPS!

"This was the appeal of executive Americans in 1917.

"To-day, from the most powerful financier to the poorest citizen, from the engineer to the workman, from the inhabitants of the coast to the ranchmen of the central United States—everybody has heard and understood this patriotic appeal: Without the ships the war could not be won; without them no economic victory would be possible after peace. Every American knows this; and it is this little detail which constitutes to-day the strength and wealth of the United States. But this idea which consisted in impressing upon the consciousness of every person the necessity for tonnage was not easily accomplished, and it will not be without difficulty that it is inculcated in each of us in France.

"In 1914 the commercial fleet of the United States was about equal to that of France, about two-fifths of that of Germany, and one-tenth of that of the British Empire.

"In 1917, before the entry of America in the war, its tonnage of 2,500,000 was practically unchanged. In fact, at that time our allies did not attempt to carry an industry which foreigners could conduct more economically.

"At the time when, because of her entry into the war, America was pledged to furnish tonnage she had nothing; workmen, construction materials, shipways, equipment—in fact, everything had to be created.

* * * * * * *

"The patriotic fiber responded at once, the legendary American navigator aroused himself at once from his sleep of more than 50 years. And soon every American was acquainted with the necessity of the hour and offered spontaneously his assistance.

* * * * * * *

"More than 150 shipyards are building ships, the greater part of which, recently established, are still unfinished. The United States Shipping Board placed contracts for one or more ships with each one. Among the new shipyards the two most important have, respectively, contracts for 150 and 180 ships. The largest shipyard comprises 338 hectares (846 acres), of which 10 hectares

are under roof. The construction of this shipyard was decided upon on Sep-
ber 13, 1917, and was commenced seven days later.

* * * * * * *

"It is the shipyard of Hog Island, nonexistent the 20th of September, 1[illegible]

* * * * * * *

"It is well to state that 3,500 different industrial establishments supply [illegible]
Island.

* * * * * * *

"The result is such that the director of the Shipping Board, Mr. Hurley, [illegible]
been able to state very recently: 'In 1920 the merchant marine of America
comprise 25,000,000 tons.'

"America will have increased her capacity ten times and have taken first [illegible]
among the merchant marines of the world."

Domenica Gidoni, of Banco d'Italia and Institute Nazionale per I Cam[illegible]
Lestero, Italy, after seeing the yard wrote on June 5, 1918:

"Extremely interesting and inspiring. The thing that interests me most [illegible]
the organization task of it."

William Ruys, United States representative at Rotterdam, Lloyds, and [illegible]
Schilthuis, of Holland, visited the yard December 20, 1918. Mr. Ruys said:

"I see in Hog Island the upbuilding of the merchant marine of the U[illegible]
States. You have unlimited possibilities here."

Prince Axel Christian George of Denmark, together with Commander Jo[illegible]
Korbling, Lieut. Commander F. W. Laub, and Lieut. Commander Andres T[illegible]
of the Danish Navy, visited the yard November 12, 1918. Prince Axel said:

"The Hog Island shipyard and terminal surpasses anything we ever drea[illegible]
of in Europe. It is a marvelous feat in engineering skill.

"The yard itself is the best reproof of any criticism."

Col. T. Yoshida, head of Japanese military mission, on March 29, 1918, sa[illegible]

"We came, we saw, and were amazed; we never thought there was any[illegible]
so big in the world. I am amazed at the size and the speed at which it [illegible]
constructed."

Y. Tsutsumi, T. Moriyq, K. Inouye, K. Murakami, of Asamo & Co., To[illegible]
Japan, on November 4, 1918, wrote:

"It was very fortunate indeed for us to have had such a great opportunity [illegible]
see the wonderful shipbuilding plant at Hog Island. No other country, [illegible]
think, other than the United States can launch such a great enterprise. I[illegible]
*the* American enterprise, run under characteristic efficient American man[illegible]
ment."

U. Hashimoto, Y. Konishi, Y. Koshimura, T. Ohyma, and S. Tsunemats[illegible]
group of Japanese business men, on June 20, 1918, made this comment:

"Were astounded at the size of the shipyard and expressed great satisfac[illegible]
of the work which had been done.

"One of the Japanese said he did not believe there were 50 ways and cou[illegible]
them, and said there were not 50 ways in all Japan."

Twenty-three Mexican newspaper men, under the guidance of Lieut. C[illegible]
mander O'Reilly, came to the yard June 10, 1918.

Señor Enrique Manero, of El Economista, said: "Our breath was taken aw[illegible]
It was so much larger and so much more efficiently operated than anyth[illegible]
in Mexico that it was hard for us to comprehend it."

Manuel Capio, editor and general manager of La Voz d'la Revolucion, said:
"We had conveyed to us the enormous meaning of the work of shipbuilding
and we are already at work telling the people of Mexico, through the columns
of the press, of the wonderful work. We will tell our stories so that the
Mexican people may have the right impression of the intention of the United
States in this war. * * * We are learning how to view the United States
and we are learning to rightly interpret the things we hear."

South American diplomats came on July 27, 1918—

Señor Varela, chargé d'affaires of Chile: "Colossal, grandiose. It is our
hope that this is a starting piece of a greater friendship between the United
States and South America."

Minister Calderon, of Bolivia: "I could not have believed it without seeing
It is vast. It means much to my country."

Minister Mendez, of Guatemala: "Tremendous, wonderful, gigantic."

Minister Menos, of Haiti: "Wonderful. Indeed, I could not have imag-
ined it."

Minister Cespedes, of Cuba: "Marvelous from every aspect. I am thrilled by this thing, being, as I am, one of your allies. There is a great friendship and solidarity between Cuba and the allies. We shall stand by you to the last, sure of victory."

Minister Dominici, of Venezuela: "A wonder of industry and achievement, and more than ever so considering the incredible fact that it was built in less than a year."

L. E. Le Fevre said: "Gigantic. Of course, it reminded me of the Panama Canal work just before completion, but Hog Island is simply stupendous."

Minister Ureueta, of Colombia: "Tremendous, fine."

Minister de Freyre, of Peru: "Extraordinarily fascinating."

Minister Galvan, of the Dominican Republic: "I am dazed by it. There never was anything else like it. It is too big for words."

Señor de Pena, of Uruguay: "A wonderful achievement of American ingenuity."

Minister Lopez said: "Wonderful. Such enormous construction in such short time. How can it be described?"

Royal Spanish naval commission, headed by Capt. F. de la Rocha, president, including Marquis of Belmonte, Felix de Martino, and Miguel Bertran de Quintana, came to Hog Island October 9, 1918. They said: "Oh, it is tres magnifique! It is grandiose! It is wonderful. I can not find words to say it."

T. J. N. Gatrell, of Peking, China, wrote on October 16, 1918:

"The copies of the Bridge of Ships reached me in good condition. I have distributed a number of these reprints among Chinese officials and in almost every case they have been acknowledged with expressions of thanks, and in one, with admiration for the 'Tremendous contribution to the cause of international liberty.'"

Hon. W. Cameron Forbes, ex-governor of the Philippine Islands, said on November 11, 1918, after seeing Hog Island:

"If you could not build this plant, then nobody could—but you have built it, and you have done a fine job. It's a shame that you couldn't be let alone so that you could have put all your energies on the construction work."

Frank Q. Brown, chairman Capital Issues Committee, said on June 26, 1918:

"It is a wonderful undertaking and deserves praise rather than condemnation."

Charles A. Morse, chairman Federal reserve bank, Boston, visited Hog Island June 26, 1918, and said:

"Hog Island is now such a famous place that no one can be said to have seen all the sights who has not been there, and I was very glad to have had the opportunity to visit it."

John A. Penton, publisher of the Iron Trade Review, Marine Review, and other technical journals, wrote after seeing Hog Island on October 21, 1918:

"The story of Hog Island is the most wonderful story of a constructive character in the entire war, as far as the United States is concerned."

Hog Island has been visited almost daily by visitors, both from our own country and from abroad. I mention particularly the following:

Newspaper men representing papers published in England, France, South America, Australia, and Scandinavia visited Hog Island on February 23, 1918, under the auspices of the United States Government.

In June, 1918, a Danish mission consisting of the former Danish consul of New York, the vice chairman of the Danish charter committee, and others, paid a visit to Hog Island.

On August 29, 1918, prominent citizens from Uruguay visited the yard, including Dr. Balterserbrun, minister of foreign affairs; Dr. Ceseare Merandi, vice president-elect, and others.

In September, 1918, Adrian Abraham, chief engineer of the Compagnie Generale Transatlantique, the great steamship concern in France, spent several days in going over the yard in detail and expressed his approval of the layout.

In October, 1918, British educational men, including the vice chancellor of the University of Cambridge, the vice chancellor of the University of Manchester, prominent members of the faculty of the University of Oxford, the University of Glasgow, and the University of Dublin, came to the yard.

In December, 1918, the yard was visited by a delegation of Scandinavian journalists, including C. J. Engstrom, Stockholm, Sweden; Valdmer Galster and Tage Halberstadt, Copenhagen, Denmark; Sigurd Konstadt, Christiania, Norway; Otto Johansson, Stockholm, Sweden; Herman Kr. Lohmkuhl, Christiania,

Norway; C. Emil Marott, Odense, Denmark; Erik Palm, Linkoping, Sweden; Arthur Ratche, Vilhelm Tvedt, and Jacob Vidnes, Christiana, Norway; Anders Vigon, Copenhagen, Denmark. They stated that they were surprised at the size of the undertaking, and that there were few cities in Norway and Sweden that had a population as big as Hog Island.

A delegation from the Tokyo Chamber of Commerce came to the island in December, 1918.

Mr. BRUSH. In addition to the above we have in our files a great volume of testimonials of every character from representative men from all over the world who have visited the plant and spoken most favorably of it. This is particularly true of representatives of our allies in the war, who were practically unanimous in their expression of opinion that, regardless of the output in ships from the plant, the effect upon the citizens of the allied countries was most encouraging and had a tremendous effect in keeping up their morale.

It was also generally felt by those who saw the stupendous magnitude of the work, indicative of the determination of the United States to prosecute the war to a finish and to absolutely overcome the German submarine menace, that unquestionably it was having a very detrimental effect on the maintenance of German morale.

As a further evidence of the fact that Hog Island was a matter of concern to our enemies during the war, we found it necessary to maintain a very comprehensive and high-grade guard system, consisting of 1 major, 17 commissioned officers, 89 noncommissioned officers, 411 privates, and 27 civilians, a total force of guards of 545, which force was reduced to 227 immediately upon the signing of the armistice. The guards were all armed with military equipment consisting of 800 rifles (Krag-Jörgensen), 100 revolvers, 3 machine guns, 25 blackjacks, 597 batons, 38 handcuffs, and 700 whistles.

In addition to this a thorough water patrol along the water front in front of the wet basin and ways was maintained, as well as a jail on the island.

There was also a mounted detail consisting of 50 officers and enlisted men with 56 horses, all of which was reduced immediately upon the signing of the armistice.

A total number of 16,433 cases and investigations were handled during the year, or an average of 45 per day. This number included special cases for the Department of Justice, Military and Naval Intelligence Bureau, American Protective League, and for the police departments in other cities. Many of the cases were disposed of by the United States court at Philadelphia.

The department proved of assistance to the Government in the enforcement of the "draft," as well as the laws concerning alien enemies, in evidence of which 433 draft delinquents were turned over to the Department of Justice and 254 alien enemies were either turned over to the same department or escorted from the island.

As an evidence that shipyards in this country were a matter of concern to the enemy of which we were conscious and governed ourselves accordingly, the following clipping from the New York Tribune of Sunday, January 12, 1919, is submitted:

"Peter Zwaay, a young Hollander who entered this country last summer on a Dutch transport bearing the name of Johannes Leonidas Titus van Harem, was held in $5,000 bail yesterday by the United States Commissioner Hitchcock, for violation of the espionage act, after he had acknowledged that he was

a secret agent of the German Government working under direction of Aptroot, the master Hun spy in Holland.

"According to Lawrence Axman, Federal prosecutor, Zwaay confessed to the naval authorities that he was sent to this country by Aptroot, who had headquarters at Rotterdam, to convey information to Holland on troop movements. He was instructed to keep track of the movements of the *Leviathan*, but in his statement to Ensign John J. Glynn, he said he had not sent back any information. He turned over to the authorities a secret code, and explained that he had been ordered to write his message in iodine, with some simple and innocent sort of communication on the same paper in ordinary ink.

"Mr. Axman said that since Zwaay landed in this country he had been working in the Newark shipyards under the name of Van Haren. Before being sent on the mission to America he was in England for some time in the pay of Germany. While here, he explained, he sent many messages to the Germans because he was being well paid, but insisted that they contained no information of value.

"Zwaay was taken in custody after he had applied to the Dutch consul for a passport to return home. The matter was taken up with the Federal authorities, who recalled having been warned to look out for a sailor with an anchor and star and the letters 'P. Z.' tatooed on his arm and hand. When these marks were found on Zwaay he confessed.

"In default of surety he was committed to the Tombs."

Mr. BRUSH. Now, Mr. Chairman, if I may, in closing, I should like to say this:

I think it might be of interest to you, in trying to conceive of just what Hog Island is, and what it means, to have some comparisons in your records with such institutions as the Panama Canal and some of the other very large pieces of engineering work that have been done in recent years, together with the estimates that have been made, and the actual expenses.

The Panama Canal, which was originally estimated to cost about $145,000,000, finally cost approximately $435,000,000. It was estimated that the work would be done in 2½ years; in fact, it took about 9 years, notwithstanding the fact that they had been surveying it for 15 or 20 years—the French Government and our Government.

In this immediate vicinity, here in Washington, the War Department estimated that the Virginia Bridge would cost in June, 1915, $1,000,000; and in January, 1918, it was estimated to cost $2,100,000, to be completed in 1921; and the cost will actually exceed the last estimate.

The Kansas City Terminal Railway, which was originally estimated to cost $30,000,000, they have spent over $50,000,000 up to date.

Senator VARDAMAN. All of which goes to show the fallibility of human judgment.

Mr. BRUSH. Yes, sir. Senator Vardaman, I should like to insert a memorandum with regard to the cost of the completion of the Panama Canal.

The CHAIRMAN. All right, that may be inserted.

(The statement referred to is here printed in full as follows:)

(W-2.) JANUARY 27, 1919.

PANAMA CANAL.

From May, 1904, to September, 1905 (16 months), the American Government had force of engineers making preparatory studies or plans. In September, 1905, meeting was held to discuss these plans and later it was decided to start work of preparing detailed plans in August, 1906, which plans were completed in March, 1907. Actual construction work commenced March, 1907. Canal completed March, 1914. Opened to traffic August 15, 1914. Officially opened January, 1915.

| | |
|---|---|
| Preparation | 2 years 3 months. |
| Detail plans | 7 months. |
| Planning period | 2 years 10 months. |
| Construction period | 7 years. |
| Total | 9 years 10 months. |
| Final cost | $435,000,000 |
| Original estimate | 145,000,000 |
| Excess over estimate | 290,000,000 |

(Actual cost three times the original estimate.)
(Authority, A. I. S. C., Washington office.)

Mr. BRUSH. If I may I should like to read into the record a statement which Mr. Piez made before this committee on January 2, 1919. Quoting from his letter of September 25, 1918, to Chairman Hurley, commenting on some comparisons of costs of the three agency plants made in the Attorney General's report:

A careful review of both the figures and all of the attendant circumstances prompts the suggestion that it would be very unwise, if not unfair, to deduce from the differences in cost per way that Hog Island was not as economically constructed as either of the other two plants. I doubt very much if, with the advance in labor costs, Hog Island could be reproduced to-day, even under more favorable weather conditions, at any less. And, above all, it must be remembered that Hog Island presents an opportunity for salvage value as a shipping and railroad terminal that far exceeds that of either of the other two plants. Newark Bay is on leased land, and must eventually be disposed of at scrap value, and the location of the Bristol yard holds out no great promise for continued usefulness upon the return of keenly competitive conditions. Its salvage value will be seriously affected by this fact.

In closing, Mr. Chairman, I should like to say this: I do wish you would do one thing for me after I am through; I do wish you would, for my satisfaction, or if Senator Johnson is here, he has been particularly interested in this: I would like you to put on the stand a man who has been on the *Quistconck*. I want to stop, once for all, this talk of the *Quistconck* sinking at the dock and being put in drydock, etc. Any statement to that effect is absolutely untrue; and I would appreciate it if you would examine the man who has been in the engine room of the *Quistconck* from the time she was delivered——

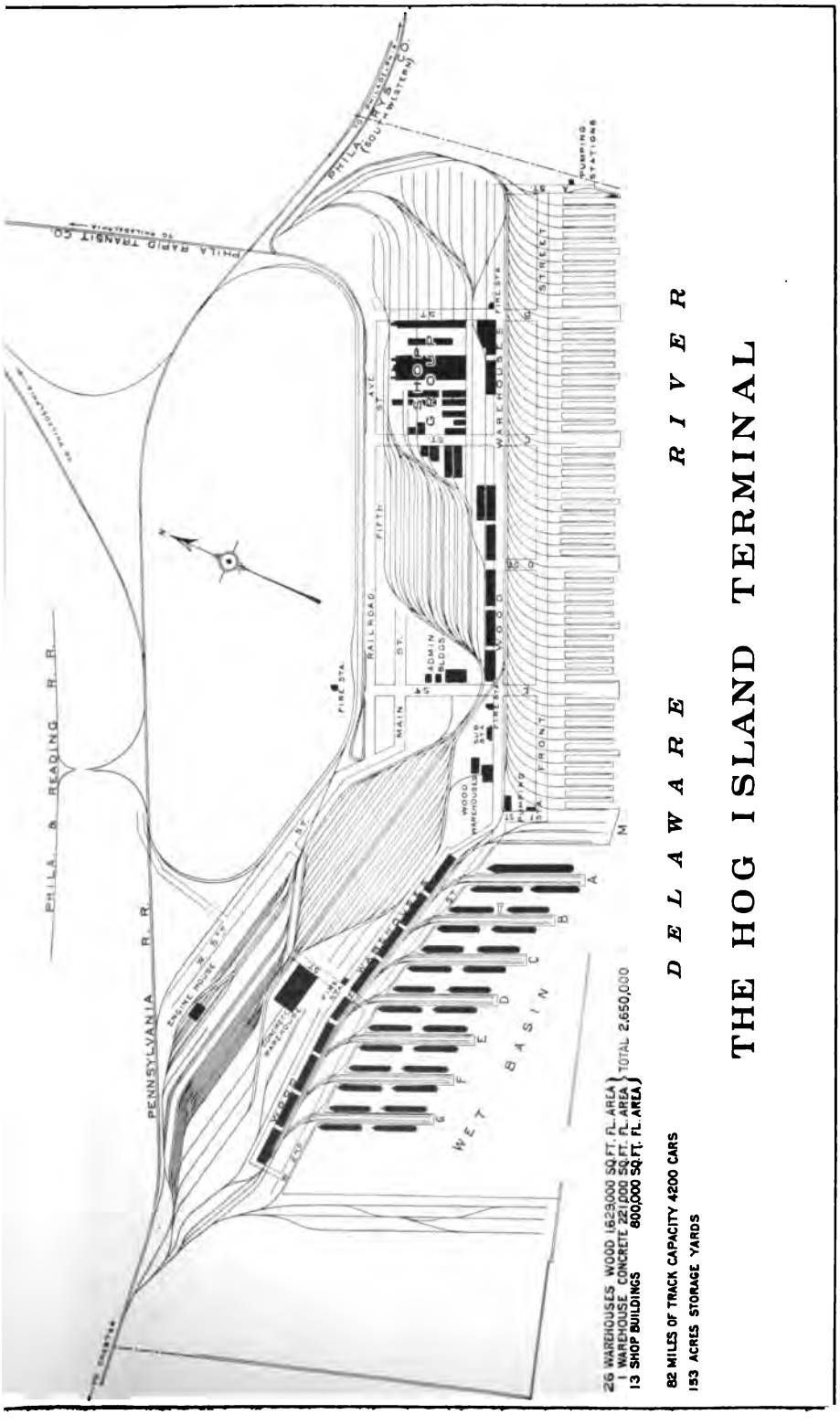
Senator RANSDELL (interposing). What is his name?

Mr. BRUSH. Mr. Walker C. Pierce. He is present now.

The CHAIRMAN. The same kind of stories have been told about the wooden ships.

Mr. BRUSH. I would like to make clear to you that it can be proved to your satisfaction that Hog Island is one of the marked exceptions in the entire war program, in this respect; that its building will be entirely justified as a terminal, aside from its shipbuilding facilities. Hog Island to-day, I believe, occupies the position of being as good a salt-water terminal or coast terminal as any in the United States. And I have had the map drawn here [see illustration, p. 393] of Hog Island, which is a map of nothing on earth except that which is there at this minute. The terminal exists; and if the United States Government wants to commence using it to-morrow morning as a terminal it can do so.

Let me mention a few facts in regard to this plant as a terminal. The 26 wooden warehouses and the large concrete warehouse were




"W-59" THE HOG ISLAND TERMINAL.

designed so that they would be available as storage houses in a terminal scheme. Each warehouse is served by a railroad track for the entire length of the house and each warehouse has a platform adjoining a street for its entire length. In other words, each warehouse is available for its entire length to the railroad, to teams, and to trucks on opposite sides of the house.

The 25 miles of railroad track serves the 148 acres of steel, machinery, and outfitting storage yards, and was designed to be available for the storage of any material that could be stored in the open.

The steam-railroad tracks are constructed on a maximum of 104-foot centers, on which we operate locomotive cranes equipped with 50-foot booms. In other words, every square foot of the space in our storage yards between the railroad tracks can be reached with a locomotive crane. I mention this as an indication to you that the storage yards are equipped to handle with self-propelled mechanical lifting apparatus heavy and bulky material at the minimum expense.

In designing our seven outfitting piers we placed two standard steam-railroad tracks on each side of the pier with double crossovers between each two tracks about the center of the pier; these two tracks serve every ship at the wet-basin piers, which helps us in the speed of outfitting our ships, and is very desirable when the piers are used as commercial piers in that the track on the outside of the pier can be used for flat cars containing heavy bulky material and the freight on that track is within reach of the ship's tackle. On the inside track can be placed box cars containing freight which must be unloaded on the pier, and freight unloaded from box cars on the water side of this track is within reach of the ship's tackle.

Each of the seven piers is equipped with four self-propelling gantry cranes running on a wide-gauge railroad track, which spans the outside railroad track on each side of each pier. The clearance under this gantry crane is sufficient to permit the operation of standard locomotives and cars. In other words, locomotives and cars can be run under the gantry cranes and the gantry cranes can propel themselves over the locomotives and cars. Each of these gantry cranes is equipped with booms 50 to 70 feet in length. In addition each of the piers is equipped with two self-propelling locomotive cranes, and Pier B is equipped on the east side with a bridge crane with a span of 118 feet, and 111-foot clearance from mean low tide with a lifting capacity of 100 tons, which is used for placing the turbines and reduction gears in the ships immediately after they are launched. The same crane is admirable for placing locomotives and other heavy articles in the holds of vessels.

Each of the piers is piped for high pressure water for fire protection and domestic water for drinking purposes, electric lines for both light and power and compressed air lines.

Wooden warehouses are equipped with brick fire walls every [illegible] feet, with hose reels and portable fire extinguishers for fire protection and electric lights.

The storage yards are wired for electric light and piped for water and air.

In fact, gentlemen, summing up I have no hesitancy in stating to you as a positive fact that there does not exist at any commer-

cial port in the United States any better equipped storage yards and storage houses or piers for commercial purposes. In fact, I make the statement without hesitancy that at no other commercial piers in the United States does there exist to-day 50 per cent of the modern appliances for the handling of cargo and the quick dispatch of vessels with economy and speed that is at this minute available and in actual operation at Hog Island with all details so thoroughly and painstakingly thought out and provided for.

Vice President Howard Coonley of the United States Shipping Board Emergency Fleet Corporation has made a statement that he believes Philadelphia ought to spend $100,000,000 for a terminal. Now, if they bought this terminal for just exactly what it cost the Government—$66,000,000—which would be a long way from the $100,000,000——

Senator RANSDELL (interposing). Do you mean to say that it is worth anything like $100,000,000 as a commercial terminal?

Mr. BRUSH. I believe Hog Island is worth more at this moment than the United States has invested in it, as a terminal.

Senator RANSDELL. As a commercial terminal for the city of Philadelphia?

Mr. BRUSH. Yes; and I believe that Hog Island is the one war venture that has taken place during this war, where every single penny that was spent by the Government can be recovered. I am thinking about T. N. T. that is being dumped into the sea or taken out to Arizona to be stored, and the millions of dollars spent on gas masks, harness, saddles, leather goods, and all of those things that are wasted—legitimately wasted, of course, because all of these were war investments. But you are fortunate in having made a war investment at Hog Island, which was well enough designed and built in a sufficiently substantial manner to become a substantial first-class, high grade commercial terminal after the war is over.

Senator RANSDELL. Do you mean that if we wanted to junk all these ways at Hog Island, the terminal there would be worth more than the whole thing cost?

Mr. BRUSH. I believe that firmly.

Senator RANSDELL. Is that the opinion of Mr. Howard Coonley?

Mr. BRUSH. I believe that is the opinion of Mr. Howard Coonley. He says he believes Philadelphia could afford to spend $100,000,000 to have a proper terminal. That [see illustration, p. 393] is a picture of Hog Island as it is this afternoon; those docks are all there.

I would like to insert Mr. Coonley's statement in the record at this point.

The CHAIRMAN. All right, Mr. Coonley's statement may be inserted.

(The statement referred to is here printed in full as follows:)

[The Philadelphia Press, Nov. 9, 1918.]

URGES HOG ISLAND SITE FOR GREATEST PORT IN THE WORLD—HOWARD COONLEY ADVISES PURCHASE OF SHIPYARD AFTER BUILDING PROGRAM IS COMPLETED—ROOM FOR 50 PIERS—CITY, STATE, AND BUSINESS MEN MAY FLOAT $100,000,000 BOND ISSUE FOR PROJECT.

Howard Coonley, vice president of the Emergency Fleet Corporation, declared yesterday that the business men of Pennsylvania, by the purchase of Hog Island following the ending of shipbuilding there and the floating of a

$100,000,000 bond issue by the city and State can transform the Philadelphia district into a mammoth port second to none in the world.

Mr. Coonley's statement came shortly after it had been learned that several maritime companies, including one trans-Atlantic concern, now using other ports are seeking dock facilities in this city.

"Hog Island is the ideal location for a great port," said Mr. Coonley. "It has a great deal of room for development and 50 piers could easily be constructed in this one spot. At present Hog Island has seven piers which could be utilized for port facilities as soon as the present shipbuilding program is finished."

In suggesting the raising of $100,000,000 by a bond issue Mr. Coonley said that this vast sum could not only be spent for the purchase and equipment of Hog Island, but that it could be used to build up the whole Philadelphia port industry.

"Hog Island," he said, "can be made the nucleus for the great port because it is so ideally located. There are ample trackage facilities at the yard at the present time which connect with the great rail centers. These can be added to with the building of additional piers until not only Hog Island but the entire Delaware River front will be one great center of maritime activity where ships from every part of the globe can load and discharge their cargoes.

"Huge warehouses would have to be built to take care of the great ship cargoes. In addition, mighty cranes and other equipment would have to be constructed, while it would undoubtedly be necessary to construct additional railroad spurs connecting with the main lines of the various railroads."

Mr. Coonley emphasized the need for immediate action on the part of Philadelphia's business men because of the likelihood that advantages of other ports might be considered before that of Philadelphia if there was delay. He suggested that the business interests of the city and State immediately form an organization by which surveys may be made to determine existing facilities in and around this city for the starting of the enterprise.

Senator RANSDELL. Those [see illustration, p. 393] are the piers, are they?

Mr. BRUSH. Those are the piers; and that is where the dredging came in.

Senator RANSDELL. Each pier would hold four ships, would it?

Mr. BRUSH. Yes, sir; except that I have put in there [indicating] a 20,000-ton ship, 800 feet long; and I have put in there [indicating] two ships of 8,000 tons, 448 feet long; and at the rest of the piers I have put in 7,500-ton ships.

Here are 26 wooden warehouses. There [indicating] is as fine and as perfect a warehouse as exists on the face of the globe; it is of concrete, 172 feet wide, and 400 feet long, with this railroad track [indicating] running through it. It is absolutely fireproof.

Here [indicating] is as fine a steam railroad terminal as there is anywhere I know of.

Here [indicating] are your bank building, record building, your telephone building, your fire stations, your electrical substation, and so on.

Senator RANSDELL. I have understood that the space between those piers was too narrow to allow them to be used for commercial purposes. Is there anything in that statement?

Mr. BRUSH. No, sir! there is nothing in that statement.

The CHAIRMAN. Do you mean to say that you could accommodate four ships to each pier?

Mr. BRUSH. Yes, sir; we have 266 feet of clear water space between each pier, and, of course, with this much space you can place two of any size ship that sails between each pier; we have four lying at the pier right at this moment. We have 10 of those ships at those three piers. What I want to say is that this is available to meet a wartime need for terminals, if you are going to have a war; or in time of peace, it is valuable as a terminal for your merchant marine—and

you have every argument as to what ought to be done on account of the experience in New York as a shipping terminal.

Now, here at Hog Island, that land we own; you have an option on it for the exact amount that we paid for it. At the time the contract was signed, an option was given to the Government to buy that land and take it off our hands, at exactly the price we paid for it. And afterwards Mr. Whipple told the Emergency Fleet Corporation that the option was not valid, because the Government did not have a right to buy land at that time; therefore, the option was not legal. And they came to us and told us so; and we said to them, "Our intention was that you should have that option;" and so we executed another option to them. When was that, Mr. Knight?

Mr. KNIGHT. Three months ago.

Mr. BRUSH. That was arranged between our vice president and counsel, Mr. P. O. Knight, and the attorneys of the Fleet Corporation.

Mr. KNIGHT. The option was originally of doubtful validity.

Mr. BRUSH. So that the Government has that option now for the land. Here [see illustration, p. 393] are your piers; and here [indicating] is your terminal. Here [indicating] is the end of your ways; there [indicating] is where your piers end. There are seven piers 1,000 feet long and 100 feet wide.

The CHAIRMAN. And there are two boats in it?

Mr. BRUSH. There are four boats lying at that pier now. There are three boats lying at that pier [indicating]; on the east side of Pier B [indicating] is a 100-ton crane that can be used for loading heavy articles of cargo; and I do not know of any docks that have any crane as big as that. Incidentally, here [indicating] is the 81.14 acres of land that Senator Ransdell asked about.

Senator RANSDELL. That is just across the river, is it?

Mr. BRUSH. No; it is at right angles to the marginal wharf out into the river at the west end of the property, and is what was known as our west impounding basin.

Senator RANSDELL. And you could build more piers there if you needed them, could you not?

Mr. BRUSH. Yes, sir. But I wanted to make clear the capacity of those docks. We have four steam railroad tracks and two gantry crane tracks down the entire length of each dock.

Senator RANSDELL. What is the space between those piers; from basin to basin, how many feet is it?

Mr. BRUSH. Two hundred and sixty-six feet between your piers.

Senator RANSDELL. And that is plenty of space to load commercially, is it?

Mr. LEVY. The Bush Terminal at New York has slightly less than that.

Senator RANSDELL. It is substantially the same as at the Bush Terminal?

Mr. LEVY. It is a little more.

Mr. BRUSH. The east side of that 81.14 acres [indicating] can be used to construct a huge dock which can be used, if you see fit.

The CHAIRMAN. Where are your concrete ways?

Mr. BRUSH. Right here [indicating]; our second group of 10 ways. Now here [indicating] is a picture of Bush Terminal.

Senator RANSDELL. I wanted to have that clear, because I have heard it said that they really could not use it commercially very well.

Mr. BRUSH. Here [indicating] is a picture of the Bush Terminal.

Senator RANSDELL. That is that famous terminal in Brooklyn, is it?

Mr. BRUSH. Yes, sir; and here [indicating] is the blue print that goes with it.

Senator RANSDELL. Do you know the width between the basins there?

Mr. BRUSH. It is a little more than 200 feet.

Mr. LEVY. Let me explain that. The blue prints I had indicated that it was about 250 feet, but that showed the distance, as I figure on the print, inside the building line, while ours are 266 feet from the outside of the piers. So I say they are substantially the same.

Senator RANSDELL. They are substantially the same. Of course, this [indicating] has buildings on it, and yours has not; it would be a simple matter to put the buildings up.

Mr. BRUSH. We could not have buildings on it while we were outfitting the ships.

Senator RANSDELL. Yes; I know you could not now; but if you wanted to use it commercially, it would be feasible.

Mr. BRUSH. Yes.

The CHAIRMAN. Practically all that you would have to do is to construct a shed on them.

Mr. BRUSH. Mr. Chairman, I am afraid I have taken more time than I should have taken.

The CHAIRMAN. Does any member of the committee desire to ask Mr. Brush any questions? If not, we will hear Mr. Pierce and then go into executive session.

Mr. BRUSH. This is Mr. Walker C. Pierce, who was chief engineer of the *Quistconck*, representing the American International Shipbuilding Corporation when she was turned over to the Fleet Corporation, he having been on the ship from the time they started the machinery installation. Now, tell the committee exactly what you did, Mr. Pierce.

## STATEMENT OF MR. WALKER C. PIERCE, CHIEF ENGINEER OF THE STEAMSHIP "QUISTCONCK."

Mr. PIERCE. We have all heard of the false report concerning the *Quistconck*. I was chief engineer of the *Quistconck* from the time she made her trials up to the time she was turned over to the Shipping Board. I also went along, representing the shipyard, on her voyage, and I left the ship last Monday at New Orleans.

We heard a lot of reports about the ship being in a sinking condition, leaky, etc. I watched the ship very closely, and we have never even had to pump any water out of the ship from the time we left Hog Island, so that the ship must be pretty tight when we did not have to pump any water out of her.

And so far as the engine room is concerned, you could not get a ship to work any better. She has 15 burners under her boilers. We

had 3 burners to spare. The ship was equipped with blowers, but we never had to use the blowers.

Senator RANSDELL. Do you use oil on that ship, or coal?

Mr. PIERCE. We use oil. With four burners lit under each boiler you could get all the steam you wanted. So that there is one boiler shut off under natural draft.

Senator RANSDELL. When did you start in on the ship?

Mr. PIERCE. I started in on the ship about six weeks after she was launched from the ways.

Senator RANSDELL. When she was in the pier being fitted up?

Mr. PIERCE. Yes; the wet basin. And I supervised the installation of all the machinery—boilers, engines, pumps, etc.

Senator RANSDELL. And you have been associated with the ship up to the present time?

Mr. PIERCE. Yes; I acted as chief engineer when she went on her trial trip. I stayed on her as chief engineer up to the time she was taken over by the Shipping Board; they then put their own chief engineer on board. I went along with the ship, representing the shipyard, and I left the ship at New Orleans last Monday. When I left the ship they were loading 1,800 tons of car rails into her; they were going to finish the cargo with cotton and tobacco and send her to Genoa, Italy.

Senator RANSDALL. What actual voyage did you make on the ship?

Mr. PIERCE. After the ship was turned over to the Shipping Board the Shipping Board crew was put aboard of her, and we went out on a 24-hour trial trip, with the Shipping Board crew aboard. We came back to Lewes, Del.; anchored there about three days waiting for orders from the Shipping Board; we received orders to proceed to Norfolk, Va., to get a cargo of coal and take it to Cristobal, Panama. After we discharged the coal at Cristobal she lay at anchor several days waiting for orders from the Shipping Board. Finally orders came to proceed to New Orleans for further orders. We went to New Orleans——

Senator RANSDELL. Empty?

Mr. PIERCE. Yes, sir; in ballast. And the ship is now at New Orleans being loaded for Genoa, Italy.

The CHAIRMAN. In all those voyages, did you have any trouble with your ship in navigating her?

Mr. PIERCE. Not a thing. The ship went right along fine.

The CHAIRMAN. Did your rudder work all right?

Mr. PIERCE. Fine; never had a bit of trouble.

Senator RANSDELL. Was there any trouble of any kind that you could suggest?

Mr. PIERCE. No, sir.

The CHAIRMAN. Has she been in dry dock since she left?

Mr. PIERCE. She has never been in dry dock from the time she was launched. I went into the ship six weeks after she was launched.

Senator RANSDELL. What caused all this talk about having to rerivet her?

Mr. PIERCE. I can only say that when she was launched there was a lot of riveting incomplete in the tank and around the superstructure, which is now done on the ships when they are on the ways, but which was not done when this ship was on the ways, and when she came to the wet basin that left that much more work to be done.

Senator RANSDELL. That was in the tanks and superstructure, you say?

Mr. PIERCE. Yes, sir. The hull was finished and was perfectly tight.

Senator RANSDELL. She did not leak any?

Mr. PIERCE. Not a drop; and there has not been anything done to the hull since she was launched. The only thing that was done to the ship any more than the other ships was that the tanks were not as complete and the upper works were not as complete as the ships that are now coming down from the ways.

Senator VARDAMAN. In what way were they not as complete?

Mr. PIERCE. They were not as completely riveted, especially around the tank tops.

Senator VARDAMAN. How long would it take to do that?

Mr. PIERCE. I can not tell you that offhand, but there was more work done in the way of riveting——

Senator VARDAMAN (interposing). How long did it take after the ship was launched before she was seaworthy?

Mr. BRUSH. Do you mean if she is carried as we now carry them on the ways?

Senator VARDAMAN. No; I want to know how long after the ship was launched before she was ready to go to sea.

Mr. BRUSH. I can give you that information. She was launched August 5 and she was accepted December 3. That was 120 days.

Senator VARDAMAN. One hundred and twenty days in the wet basin after she was launched?

Mr. BRUSH. Yes, sir.

Senator VARDAMAN. What were you doing during that time?

Mr. PIERCE. When she was brought down to the wet basin the pumps were installed, the gears and line shaft were installed, and the tank tops were riveted, and the superstructure, the decks, etc., were riveted, but nothing was done to the hull.

Senator VARDAMAN. The hull was sound, was it?

Mr. PIERCE. The hull was complete when she came down, and there was nothing more done to it. It was all in the superstructure and around the crew's quarters, and around the bridges and tank tops.

Senator VARDAMAN (interposing). And it required 120 days to finish that up?

Mr. PIERCE. I believe it was around that time.

Senator VARDAMAN. Did you go on the ship when she was first launched?

Mr. PIERCE. I went on the ship six weeks after she was first launched. I saw her launched, but I was on one of the other ships.

Senator VARDAMAN. You did not see it, then. You did not go on the ship until six weeks after she was launched?

Mr. PIERCE. But the day she was launched I was sent by the superintendent of outfitting to go to the ship, down in the wet basin, and try to see if she was leaky.

Mr. BRUSH. Did you ride on her?

Mr. PIERCE. No, sir; but as soon as she got to the dock I went into the hull and looked all the tanks and bilges over to see if there were any leaks, and I could not see any from stem to stern.

Mr. BRUSH. How many hours was that after she was launched?

Mr. PIERCE. That was three or four hours after she was launched.

The CHAIRMAN. You say they had no trouble with the gears or turbines or anything of that kind?

Mr. PIERCE. No, sir. Just before I left the ship last Monday I opened up the gear cases, and the gears looked as fine, after that ship had gone 4,000 miles, as when they were put in.

The CHAIRMAN. Mr. Pierce, I do not know whether you have had experience with other ships and looked over other ships or not, but I have been told that these ships that we are building at Hog Island are better equipped and have more generous and better accommodations for crew and officers, and the furnishing of the ship is superior to the cargo ships of any other country.

Mr. PIERCE. I believe that is true, Mr. Chairman.

One little thing I would like to mention, Mr. Chairman: We had a General Electric man along with us this time, and there had been lots of trouble with gears in other ships, and turbines in other ships. We had a General Electric man along; he wanted to take the amount that the gear had vibrated fore and aft, and he intended to rig up a sort of dictograph to record the amount of vibration. But he came to me and said, "There is no use putting that up; it is the best job I have ever seen. I have been following this game with the General Electric Co. for 12 years, and that is one of the best installations I have ever seen. It is not worth while putting the rig up." And he did not even come from Cristobal to New Orleans with the ship; he came up on the *Victoria*. He said there was no use of his staying on the ship any longer.

Senator VARDAMAN. Who was that?

Mr. PIERCE. It was Mr. A. C. Lieshmann.

Senator VARDAMAN. Who is he?

Mr. PIERCE. The representative of the General Electric Co., who built the turbines.

The CHAIRMAN. I think that is all. Mr. Brush, what do you know about having trouble with the turbines at other places?

Mr. PIERCE. I would like to answer that question, Mr. Chairman. A great deal of the trouble that occurred has come from nonalignment; that is, the turbines and the line shaft were not properly in line, and if they are not properly in line the turbine will vibrate. In all the ships that we have put out so far from Hog Island the turbines run so nice and smooth that you can stand a coin on them; they do not vibrate at all.

Mr. BRUSH. In answer to your question, Mr. Chairman, I will say that the only other plants with which I am at all familiar are, first, one other fabricating plant on the Delaware River, the Merchants' Shipbuilding Corporation; and second, the plant up at Newark, N. J., the Submarine Boat Co. And I only know of those through hearsay. But I believe that the Submarine Boat Co. have delivered one boat, the *Agawam;* the last we heard of it she was at the Bermuda Islands; they have delivered no other boats to my knowledge.

The other fabricating plant, the Merchants' Shipbuilding Corporation, at Bristol, have not delivered any boats. They have had a very difficult and a very discouraging and heart-breaking time with their gears, and as to just where they stand now I can not say, except that I understand that their first boat, the *Watawan*, which I saw

go down on her trial trip back in November, has no working gears in her now; and they are trying to install some other gears in her.

The CHAIRMAN. Who furnished the gears for those ships?

Mr. BRUSH. I understand they were supplied from another manufacturer by the Fleet Corporation.

Senator RANSDELL. They were purchased by the Emergency Fleet Corporation also, I presume.

Mr. BRUSH. Yes, sir; the same as ours were supplied. But we did this, Mr. Chairman, which I think is a credit to those boys who are doing the work at Hog Island—and they are the boys who are entitled to all the credit for this work, anyhow. One of the first things I did when I got to Hog Island was to go down to the turbine and gear house on the dock. I had had considerable experience with gears and turbines, and I found there that we were working on the gears and turbines as they were delivered to us, and we would do a certain amount of cleaning, etc., which I did not feel it was our province to do; we were buying those gears from a reputable concern, and I assumed that they ought to furnish them the same as we would buy the works of a watch.

And I went to the chairman of the board of the company that furnished them, and I told him that I believed he had a great deal at stake in seeing that these things worked right and were delivered to us right; that we would guarantee that they would be put up right if they were delivered to us right. And he took the position that I could have any man in his company, or any number of men in his company, to do anything I wanted them to do and at his expense and not at the expense of the Government nor at our expense. And he turned over to me one of the best turbine and gear men he had. And we turned all of our men out of the turbine and gear house and turned it over to him.

We do not allow a gear or turbine out of that house unless it is in as good condition as the inside of a watch. As Mr. Pierce said, we take the utmost care in setting up our turbine. The turbine is in the forward part [indicating]. First come your boilers and then your turbine. It is not on a concrete foundation; it is on a steel foundation and you have the flexibility of steel. That connects up just like the gears under the driver's seat in an automobile; we reduce the number of revolutions per minute by engaging a small pinion here [indicating], which engages a big pinion here [indicating]; and there is a pinion here [indicating] which comes from a big gear, so that you reduce that from 3,600 revolutions down to 100 revolutions. And that must be lined absolutely right. There is a shaft which goes into the thrust bearing, and that must be lined absolutely right.

And then you have about 142 feet of shafting varying from 12⅝ inches to 14½ inches in diameter to the stern of your ship, to your propeller.

Now, you must have, not theoretically, but absolutely a straight line from the front end of the shaft of your turbine to the center of your propeller, and if there is the slightest variation—those shafts are lined to the one-thousandth and a half of an inch, and if they are not exactly right they will run hot and you will have trouble. We have had no trouble of that character.

May I say one additional word?

The CHAIRMAN. Yes.

Mr. BRUSH. Of course, I was not connected with Hog Island until about six weeks ago. But I have been over Hog Island as carefully as a man can, and tried to get this thing together, and tried to reorganize our force to a peace basis, and tried to eliminate executive force and increase actual productive force.

I should never have gone to Hog Island or accepted this position—regardless of my story to Senator Vardaman—had I not had absolutely unqualified confidence that it was clean and sound and could be made a success. And I am perfectly willing to stake my reputation, not as a shipbuilder, but as an executive, that it can be made a success; and I am absolutely amazed at the tremendous volume of work that was done and the way in which it was done, and the earnestness of the boys on the ground who did the work. You have boys in that plant to-day who are absolutely groggy from having been there 16 months and working just as hard as human beings can work. It would be unfair for me to appear to represent the company in any way, shape, or manner and not give them full credit. I am entitled to no credit for it myself.

The CHAIRMAN. Senator Johnson, do you want to ask any questions?

Senator JOHNSON. Well, I am rather diffident about asking questions, because I owe you an apology, Mr. Brush, for not having been here during all your testimony; and ultimately I will read it anyway. That part of it which I have heard has been most interesting. But if you have stated what I am now to inquire about it is not necessary for you to state it again.

Mr. BRUSH. I will be glad to do what I can, Senator Johnson.

Senator JOHNSON. What date did you go to Hog Island?

Mr. BRUSH. The date I was elected president was December 13, 1918. Prior to that time I went there and hired out as a shipbuilder.

Senator JOHNSON. What was the first time you were ever at the island at all, in any capacity?

Mr. BRUSH. I visited the island purely as a visitor while I was president of a railroad, in the latter part of July last.

Senator JOHNSON. As a mere visitor?

Mr. BRUSH. With no intention or idea of ever being connected with the island.

Senator JOHNSON. You had nothing more than casual interest in the project at that time?

Mr. BRUSH. No, sir.

Senator JOHNSON. And it was as a matter of curiosity, I presume?

Mr. BRUSH. Well, curiosity and general interest in a project of that size.

Senator JOHNSON. Naturally.

Mr. BRUSH. And also my interest in Mr. Stone and Mr. Webster.

Senator JOHNSON. Your occupation prior to assuming your present occupation was what?

Mr. BRUSH. President of the Boston Elevated Railway Co.

Senator JOHNSON. You had been president of that road for how long?

Mr. BRUSH. From December 15, 1916, to October 15, 1918.

Senator JOHNSON. Your duties were those, I assume, of the usual president of a road?

Mr. BRUSH. Yes, sir. I handed in my resignation as president on July 1, at the time we turned the property over to the State of Massachusetts, and undertook to leave there at once, and I was requested by the trustees appointed by the Governor to remain with them, and I agreed to remain until they could select my successor. I continued to do that until October, when my resignation was accepted.

Senator JOHNSON. Do you know how your selection came about as the manager, or the president, or the executive officer at Hog Island?

Mr. BRUSH. I had known Mr. Stone ever since I entered college in 1897, 21 years ago. He is a Boston Tech man and so am I. I have known Mr. Stone and Mr. Webster and a great many of the officers and subordinates of the Stone and Webster organization as a college and a railroad man.

Senator JOHNSON. Is it not a fact that you were selected because the management had not been satisfactory prior——

Mr. BRUSH (interposing). That I could not answer.

Senator JOHNSON. Was that not stated to you?

Mr. BRUSH. No, sir; what was stated to me was—I had no idea of going to Hog Island, nor did Mr. Stone or his directors have any idea of sending me to Hog Island. I was employed by the American International Corporation as vice president, which position I still hold, and I went to New York. I had no idea of going to Hog Island.

Senator JOHNSON. When was that particular employment?

Mr. BRUSH. October 15, at the time I resigned from the Elevated.

Senator JOHNSON. October 15, 1918?

Mr. BRUSH. Yes, sir.

Senator JOHNSON. That employment came from whom?

Mr. BRUSH. From Mr. Stone and the board of directors of the American International Corporation.

Senator JOHNSON. Then in December you assumed your duties at Hog Island, in the capacity of chief executive there?

Mr. BRUSH. Yes, sir.

Senator JOHNSON. Were you not aware of any defects in the management just preceding yours?

Mr. BRUSH. No, sir; I was told by Mr. Stone that my predecessor, who was Mr. Frederick Holbrook, whom I had known of in Boston as a member of the firm of Holbrook, Cabot & Rollins—I had known Mr. Rollins for years, but not Mr. Holbrook—I was told by Mr. Stone that he wanted me to go down to Hog Island in November and look it over. I came down to Hog Island and hired out as a shipbuilder; and I qualified as a shipbuilder, provided I would go to school for 10 days after I got there.

Subsequent to that I went through the island as an observer, and as an officer of the company that owned the company that was running it. And, later Mr. Stone came to me, and told me that Mr. Frederick Holbrook, who had formerly been in Russia for the American International Corporation, and for his own interest, desired to return to Russia; that he had always wanted to do so, and since the armistice he was more anxious than ever to do so. He asked me to go down to Hog Island and take the presidency.

Senator JOHNSON. Well, up to the time of your novitiate in November, had you had any experience in shipbuilding?

Mr. BRUSH. No, sir; I am not a shipbuilder in any way, shape, or manner.

Senator JOHNSON. Was that your first experience when you went down there to qualify yourself?

Mr. BRUSH. Yes, sir.

Senator VARDAMAN. I think it is due to you, Senator Johnson, that you should know that Mr. Brush is an engineer who has given a great deal of his life to work very similar to the construction work that they are doing at Hog Island. He gave a short biographical sketch of himself, which you will find in the record.

Senator JOHNSON. Well, when you went there in the capacity you suggested, had you any idea that you were going to that position?

Mr. BRUSH. You mean when I first went to New York?

Senator JOHNSON. Yes.

Mr. BRUSH. No, sir.

Senator JOHNSON. That was a subsequent matter to determine?

Mr. BRUSH. I first went to Hog Island in the same capacity in which I was serving with the American International Corporation, in looking into other of its properties. I was employed by that company to go in there, as an executive, to add my experience as an executive and my experience in handling men, as well as my experience as an engineer.

Senator JOHNSON. I suppose in your testimony you have stated your salary?

Mr. BRUSH. No; but I shall be very glad to do so.

Senator JOHNSON. What is it?

Mr. BRUSH. $40,000 a year.

Senator JOHNSON. Paid by the Government?

Mr. BRUSH. No, sir; paid by the American International Corporation.

Senator JOHNSON. Well, is any part of it paid by the Government?

Mr. BRUSH. Not a cent.

Senator JOHNSON. None whatever?

Mr. BRUSH. Not even the expenses of the automobile I drive.

Senator JOHNSON. You, and you alone, pay those expenses?

Mr. BRUSH. No, sir; all the vice presidents and the treasurer are paid by the American International Corporation. There is a letter to Senator Fletcher on file, which is contained in the printed record of September 20, 1918, from Mr. P. O. Knight, our vice president and general counsel, in which he explains that.

Senator JOHNSON. You have been talking of the accomplishments at Hog Island, and the great work done there, and the like; and it seems to me that you are hardly qualified to testify concerning that, until the time when you went in there, except, of course, by obvious deduction and by inference.

Mr. BRUSH. Well, for instance, in the last five days of December we launched five boats. Since December 3, when they delivered the *Quistconck*, they have delivered four more, the fifth one last night; and they have launched 13 in addition to that one, which makes a total of 14. Now, I, with all the speed in the world, with superhuman power, could not have accomplished that since Decem-

[illegible] when I went in, unless there had been a tremendous job done before that.

Senator JOHNSON. That is true.

Mr. BRUSH. I am entitled to no credit except for getting the team together—and I am proud of that.

Senator JOHNSON. How long will it be before you complete your contract?

Mr. BRUSH. I can not tell you. We will do everything on earth to produce those ships as fast as we can, consistent with efficiency and economy. I have discussed that with Mr. Piez.

Senator JOHNSON. Can you give any approximation of the time that you will have them delivered?

Mr. BRUSH. I think it would be very unfortunate for me to guess at it at this stage of the game. I think I will be enabled to give a very much more reasonable opinion later.

Senator JOHNSON. I think you are right about that, because the statements that have been made as to deliveries have been, in most instances, wholly erroneous.

Mr. BRUSH. I explained to Senator Jones that I was a great believer in doing a thing and asking you to pat me on the back for doing it, rather than telling you what I am going to do. And I would rather——

Senator JOHNSON (interposing). That may have been one of the difficulties at Hog Island before you went there.

Mr. BRUSH. Well, I have been fortunate in this respect: I have gone so far, Senator Johnson, as to persuade the entire board of directors in New York to let me get away with what I have told you; and I have given them no further answer, and Mr. Piez has agreed to it; and they have said, "Go back and build ships;" and that is what I am going to do.

Senator JOHNSON. Well, you are on the job and are delivering ships.

Mr. BRUSH. I am trying to, Senator.

Senator JOHNSON. Well, I presume you would not want to, and I will not ask you——

Mr. BRUSH [interposing]. Go ahead, Senator.

Senator JOHNSON (continuing). To speak of your predecessors and their various works and extravagances?

Mr. BRUSH. Well, let me say this, if I can read your mind as to your thought: I am, of course, a tremendous admirer of Stone & Webster. I have known them for years. I believe they are absolutely on the level, and I believe they are big, competent, reliable engineers and executives.

Senator JOHNSON. Well, that is not the point of controversy, if there is any——

Mr. BRUSH (interposing). Well, I may be prejudiced, of course, on the question of their ability and integrity; and I am naturally prejudiced; as a man in my position, I should not have been with the institution if I had not believed as I do.

Senator JOHNSON. I think you are quite right about that; and if I were in your situation I think I would be quite as much prejudiced, or more so.

Mr. BRUSH. I am in Hog Island, Senator Johnson, for this reason—may I say this, please?

Senator JOHNSON. Say anything you wish.

Mr. BRUSH. I have just finished a job in Boston with the public utilities, where we have probably saved from a possible receivership $132,000,000 of citizens' money, widows' and orphans' money——

Senator JOHNSON (interposing). God bless you, then.

Mr. BRUSH (continuing). And savings-bank money; and it is the only street railway that I know of in the United States of America that to-day is not substantially bankrupt. There are 6,000 stockholders in the Boston elevated, and the average holding is 44 shares. Now, I remained with that property two years after Mr. Stone had offered me twice as much as I was getting, because I was 38 years old when I became president of the railroad, and I was going to finish the job; and I did. When we finished the job, I did not care to work for the State of Massachusetts in just that way, regardless of the compensation, and I resigned. Now I want to do another job, and then I want to get a better one.

Senator JOHNSON. You have done well; and I have listened to you with the utmost approval, mentally. Do not spoil it now. That is all I wish to say.

Mr. BRUSH. Thank you, Senator Johnson.

The CHAIRMAN. Now we will have an executive session.

(Thereupon, at 4.30 o'clock p. m., the committee proceeded to the consideration of executive business, and at 4.50 p. m. adjourned to meet subject to the call of the chairman.)

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